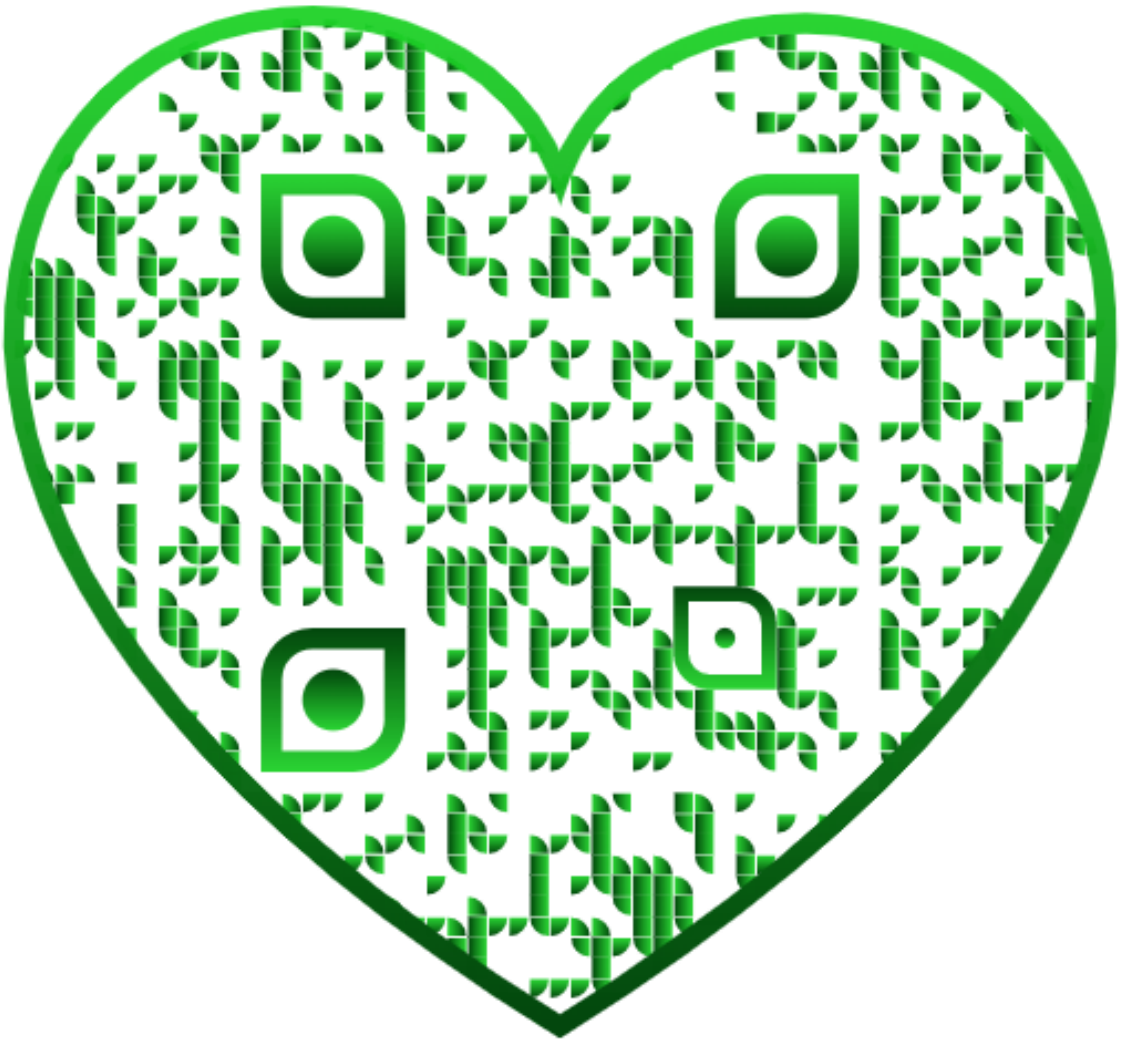
GIT:

Q1-choose the correct answer :

1) Lipid esterase and phospholipase A2 activated by :
   a) Colipase
   b) Bile salt
   c) Lipase
   d) Cl+,Br+
2) Sympathetic effects on salivary glands produce :
   a) Vasodilatation
   b) Secretion rich in mucus from submandibalar gland only
   c) Watery secretion rich in ptyalin
   d) Salivary lipase secretion from lingual glands
3) Gastric mucin :
   a) Is a glycoprotein with low molecular weight
   b) Is secreted by chief cells
   c) Deficiency of gastric mucin develop of sickle cell anemia
   d) Acts as protection against development of gastric ulcer
4) Pepsin is an endopeptidase , specific for peptides formed by :
   a) Lysin-lysin-tyrosin
   b) Lysin-phenylalanine-tyrosine serine
   c) Serine ,glycine ,proline
   d) Glycine ,serine ,proline
5) Which of the following receptors stimulated HCL secretion :
   a) Histamine , acetylcholine , and gastrin receptors
   b) Histamine , cholecystokinin , and secretion receptors
   c) Acetylcholine , gastrin , and secretin receptors
   d) Cholecystokinin , gastrin , and histamine receptors
6) Secretin hormone stimulate :
   a) The duodenum to secret enteropeptides
   b) Pancreatic secretion rich in enzymes
   c) Contraction of gall bladder
   d) HCO3 secretion by bile ducts
7) Colipase activate pancreatic lipase through :
   a) Inhibit bile salt
   b) Activate bile salt
   c) Aggregate bile salt
   d) Bind to bile salt
8) Gastrin is secreted from TG cells :
   a) Has inactive fragment in last 5 A.As from NH3-terminal
   b) ↑ It's secretion sympathetically (fear and depretion)
   c) ↑ It's secretion in response of glucogen and calcitonin
   d) ↑ It's secretion by chemical transmitters (gastrin releasing peptide)

C-87 اللجنة العلمية HUMAN MEDICINE



9) Abnormalities in digestion and absorption of protein produce :
   a) Chronic gastritis
   b) Celiac disease
   c) Steatorrhea
   d) Lactatase deficiency
10) Trypsinogen is activated to trypsin by :
   a) Removal 5 A.As from COOH-terminal
   b) The removal 6 A.As from the COOH-terminal
   c) The removal 6 A.A s from amino-terminal
   d) The removal 42 A.As from amino-terminal
11) Non-steroidal are effective anti inflammatory drugs which act by :
   a) Stimulating cyclo-oxygenase enzyme activity
   b) Prostaglandins in the stomach & duodenum
   c) Inhibiting somatostatin
   d) Inhibiting cyclo-oxygenase enzyme activity
12) One cause of duodenal ulcer is :
   a) The secretion of hormone that stimulate enough alkaline
   b) Rapid emptying of gastric contents into the duodenum
   c) Delay emptying of gastric contents into the duodenum
   d) Gastric hypo secretion
13) Pigment stones caused by :
   a) Excess cholesterol in bile
   b) Excess bile salts in bile
   c) Chronic haemolysis
   d) Estrogenic influences

اللجنة العلمية
HUMAN MEDICINE

Q2- fill in the blank :

1) Sympathetic effect in salivary gland produce the following effects :
   A) ……
   B) ……
2) Site of gastrin secretion are :
   A) ……
   B) ……
   C) ……
3) ↓↓ Gastrin secretion by :
   A) ……
   B) ……
   C) ……
4) Biogenic amines includes :
   A) ……
   B) ……

5) Severe diarrhea that accompanies cholera due to :
   A) ……
   ……
   B) ……
   ……..

Q3-Describe the sequences of duodenal ulcer .

Molecular biology :

Q1-fill in the blanks :

1) Homotic gene can be defined as ……
2) The primer can be defined as ……..
3) The initiation site if replication in prokaryotic is ……while the termination codon of translation are ……,……,and ……
4) Telomere can be defined as ……
5) DNA damage can be classified in to ……
   ……
6) The $3^{\sim} \longrightarrow 5^{\sim}$ exonuclease activity is called ……,while the $5^{\sim} \longrightarrow 3^{\sim}$ is called ……
7) The main causes of mutation are : ……
   ……
8) The main features of codon are ……
   …and……
9) …… repair correct is made by ……
10) The pyrimidine dimmer induced by UV can be repaired by ……

Q2- write short note on the following :

1) Post transcriptional modification of mRNA
2) Second step to replication
3) Termination of translation

C-37 اللجنة العلمية HUMAN MEDICINE

Cellular respiration :

Choose the correct answer in each of the following :

1) Oxidation :
   a) Is gain of electrons
   b) Loss of hydrogen
   c) Loss of oxygen
   d) All of these
2) Characteristics of free radicals :
   a) Short lived b) stable
   b) inactive d) both B &C
3) free radicals :
   a) include free radicals and antioxidants
   b) increase during chronic infection
   c) decrease during strenuous exercise
   d) all of these
4) protein carbonyl :
   a) indicator of free radicals damage
   b) indicator of protein damage
   c) indicator of oxidative stress
   d) all of these
5) endogenous antioxidants :
   a) vitamin E
   b) ascorbic acid
   c) metal binding proteins
   d) caratenoids
6) five kilo calorie is the amount of energy needed to raise the temperature :
   a) of one liter of water from 20co to 21co
   b) of one liter of water from 20co to 24co
   c) of one liter of water from 21co to 26co
   d) one of liter of water from 20co to 30co
7) oxidases :
   a) catalyze the removal of hydrogen from substrate
   b) use oxygen as hydrogen acceptor
   c) produce water (H_2O) or hydrogen peroxide (H_2O_2)
   d) all of these
8) inhibitors for complex III :
   a) amytal b) cyanide c) antimycin d) caratenoids
9) uncouplers:
   a) compounds dissociate oxidation in respiratory chain from phosphoryaltion
   b) 2-4-Dinitrophenol c) both A & B d) none of the above

اللجنة العلمية
HUMAN MEDICINE

Renal system :

Q1-choose the correct answer (only one):

1) The following are function of potassium, except :
   a) In the hormone regulation
   b) In acid base balance
   c) In the urine and blood volumes
   d) In the pyruvate kinase activity
2) Respiratory alkalosis due to an :
   a) Increase elimination of CO_2
   b) Decrease elimination of CO_2
   c) Increase absorption of HCO_3
   d) Decrease absorption of HCO_3
3) Urine concentration test is used for assessing :
   a) Glumerular function
   b) Glumerular and tubules function
   c) Tubular function
   d) All of the above
4) Hypernutremia is due to the following , except :
   a) Increase in Aldosterone
   b) Decrease in ADH
   c) Severe dehydration
   d) Diabetic mellitus
5) Abnormal urine is indicated by the following except :
   a) Appearance of proteins
   b) Appearance of glucose
   c) Appearance of ketone bodies
   d) Appearance of urea
6) Acidosis is indicated by the ratio of :
   a) $HCO_3/H_2CO_3=20$
   b) $HCO_3/H_2CO_3>20$
   c) $HCO_3/H_2CO_3<20$
   d) None of the above
7) The increase of creatinine in urine indicates :
   a) Normal
   b) Liver disease
   c) Kidney disease
   d) All of the above
8) Acute kidney disease is indicated by :
   a) Oligourea
   b) Polyurea
   c) Hypernutremia
   d) All of the above

اللجنة العلمية
HUMAN MEDICINE

9) Dialysis means :
   a) Removal of waste products from blood
   b) Removal of creatinine from blood
   c) Increasing electrolytes in blood
   d) Correction of blood PH
10) All of the following are function of kidney , except :
   a) Regulation of hormone
   b) Synthesis of some hormone
   c) Excretion of waste products
   d) Reabsorption of some substance
11) The substances that are completely reabsorbed by the kidney tubules are :
   a) Bicarbonate and phosphate
   b) Bicarbonate and glucose
   c) Glucose and phosphate
   d) Sodium and water
12) The appearance of glucose in urine is an indication of :
   a) Kidney disease
   b) Diabetic mellitus
   c) Kidney and diabetic mellitus
   d) None of the above
13) The following is a buffer system in human body :
   a) Phosphate buffer
   b) Hemoglobin buffer
   c) Bicarbonate buffer
   d) All of the above
14) The presence of ammonia in urine indicates :
   a) Alkalosis
   b) Acidosis
   c) Alkalosis and acidosis
   d) None of the above
15) The blood volume is controlled by :
   a) Aldosterone hormone
   b) ADH hormone
   c) Aldosterone and ADH
   d) None of the above
16) The main components of acid base balance are :
   a) Chloride, sodium ,and potassium
   b) Chloride , sodium , and bicarbonate
   c) Sodium , potassium , and bicarbonate
   d) Chloride , potassium , and bicarbonate

اللجنة العلمية
HUMAN MEDICINE

Q2- Explain briefly the following :

a) A test to assess glumerular function
b) The common buffer in plasma and why
c) The causes of hyponutremia

C-37 اللجنة العلمية
HUMAN MEDICINE

MOLECULAR

Q1: Choose the most correct answer:

1- **The pseudogene are defined as:**
   a) expressed
   b) non-sense.
   c) regulate development of organs in infants.

2- **The primer is defined as:**
   a) segments of oligonucleotides of DNA.
   b) attach to the 5 end of DNA.
   c) attach to the 3 end of DNA.

3- **The preferred modification bases are:**
   a) A-C
   b) C-G
   c) A-T

4- **The leading and lagging strands are formed during:**
   a) initiation of replication.
   b) initiation of transcription.
   c) elongation of replication.
   d) elongation of transcription.

5- **Repair of pyramidine dimmer :**
   a) mismatch repair .
   b) base excision repair .
   c) nucleotide excision repair.

6- **In translation initiation:**
   a) methyl –tRNA binds first at A site.
   b) eTF_2 with 40s subunit bind for preinitiation complex .
   c) eF_2 is phosphorylated by GTP.
   d) mRNA,60s subunit forming the initiation factor.

7- **Which of the following enzymes are used to join bits of DNA?**
   a) DNA ligase
   b) DNA polymerase
   c) primase
   d) Endonudease

8- **Semi conservative replication of DNA was first demonstrated in**
   a) Escherichia coli
   b) Streptococcus pneumonae
   c) Salmonella typhimuriam
   d) Drosophila melanogaster

Scanned by CamScanner

9- **Mode of DNA replication in E.coli is**

a) Conservative and unidirectional
b) Semiconservative and unidirectional
c) Conservative and bidirectional
d) Semiconservative and bidirectional

10- **When DNA replication starts**

a) The phosphodiester bonds between the adjacent nucleotides break
b) The bonds between the nitrogen base and deoxyribose sugar break
c) The leading strand produces Okazaki fragments
d) The hydrogen bonds between the nucleotides of two strand break

11- **During the replication of DNA, the synthesis of DNA on lagging strand takes place in segments, these segments are called**

a) Satellite segments
b) Double helix segments
c) Kornbeg segments
d) Okazaki segments

12- **The elongation of the leading strand during DNA synthesis**

a) Progresses away from the replication fork
b) Occur in 3'-5' direction
c) Produces Okazaki fragment
d) Depend on the action of DNA polymerase

13- **Eukaryotes differ from prokaryote in mechanism of DNA replication due to:**

a) Different enzyme for synthesis of lagging and leading strand
b) Use of DNA primer rather than RNA primer
c) Unidirectional rather than bidirectional replication
d) Discontinuous rather than semidiscontinuous replication

14- **True replication of DNA is possible due to**

a) Hydrogen bonding
b) Phosphate backbone
c) Complementary base pairing rule
d) None of the above

15- **Unwinding of DNA is done by**

a) Helicase
b) ligase
c) Hexonuclease
d) Topoisomerase

16- **DNA synthesis can be specifically measured by estimating the incorporation of radio labelled**

a) uracil
b) thymine
c) Adenine
d) Deoxyribose sugar

Scanned by CamScanner

d) Deoxyribose sugar

17- The process involved in the RNA formation on the DNA template is

a) Transcription
b) Translation
c) Replication
d) Transformation

18- The enzyme required for transcription is

a) Restriction enzymes
b) DNA polymerase
c) RNA polymerase
d) RNAase

19- Transcription is the transfer of genetic information from

a) DNA to RNA
b) tRNA to mRNA
c) DNA to mRNA
d) mRNA to tRNA

20- RNA required for the protein synthesis

a) mRNA
b) tRNA
c) rRNA
d) All of these

21- A promoter site on DNA

a) Initiates transcription
b) Regulates termination
c) Codes for RNA
d) Transcribes repressor

22- Sigma factor is component of

a) DNA ligase
b) DNA polymerase
c) RNA polymerase
d) endonuclease

23- What is the main function of tRNA in relation to protein synthesis?

a) Inhibits protein synthesis
b) Proof reading
c) Identifies amino acids and transport them to ribosomes
d) all of these

24- RNA polymerase (Ochoa 1953) has polypeptide chains

a) 2
b) 3
c) 4
d) 5

Scanned by CamScanner

25- Which site of tRNA molecule hydrogen bonds to a mRNA molecule?

a) Codon
b) Anticodon
c) 5'ends of the tRNA molecule
d) 3'ends of the tRNA molecule

26- The DNA chain acting as template for RNA synthesis has the following order of bases, AGCTTCGA. What will be the order of bases in mRNA?

a) TCGAAGCT
b) UGCUAGCT
c) TCGAUCGU
d) UCGAAGCU

27- Genetic code is

a) the sequence of nitrogenous bases in mRNA molecule that codes for a protein
b) is a triplet code
c) is non-overlapping
d) all of these

28- Translation is the

a) synthesis of DNA from a mRNA template
b) synthesis of protein from a mRNA template
c) synthesis of RNA from a mRNA template
d) synthesis of RNA from a DNA template

29- Translation occurs in the

a) nucleus
b) cytoplasm
c) nucleolus
d) lysosome

30- During translation, proteins are synthesized

a) by ribosomes using the information on DNA
b) by lysosome using the information on DNA
c) by ribosomes using the information on mRNA
d) by ribosomes using the information on rRNA

31- The enzyme involved in amino acid activation is

a) ATP synthetase
b) aminoacyl tRNA synthetase
c) aminoacyl mRNA synthetase
d) aminoacyl rRNA synthetase

32- Which of the following RNA molecules serves as an adaptor molecule during protein synthesis

a) rRNA
b) mRNA
c) tRNA
d) tRNA and mRNA

Scanned by CamScanner

33- In Prokaryotes, the first amino acid in the polypeptide chain is

a) methionine
b) N-methyl methionine
c) N-formyl methionine
d) All of these

34- In Prokaryotes, the ribosomal binding site on mRNA is called

a) Hogness sequence
b) Shine-Dalgarno sequence
c) Pribnow sequence
d) TATA box

35- During translation, the role of enzyme peptidyl transferase is

a) transfer of phosphate group
b) amino acid activation
c) peptide bond formation between adjacent amino acids
d) binding of ribosome subunits to mRNA

36- Polysomes are

a) aggregation of ribosomes
b) aggregation of lysosomes
c) mRNA molecules to which many ribosomes are attached simultaneously
d) all of these

37- Which is the energy rich molecule required for initiation of translation

a) ATP
b) GTP
c) CTP
d) AMP

38- eRF1 is the release factor in eukaryotes that requires

a) ATP for its binding to ribosome
b) GTP for its binding to ribosome
c) ATP and GTP for its binding to ribosome
d) Mn2+for its binding to ribosome

39- In eukaryotes, translation is initiated by binding of ribosome to the

a) Pribnows box
b) Hogness box
c) 5'cap
d) poly A tail

40- hsp 60 and 70 are proteins involved in

a) initiation of translation
b) elongation of translation
c) termination of translation
d) protein folding

Scanned by CamScanner

41- Tetracycline blocks protein synthesis by
a) inhibiting binding of aminoacyl tRNA to ribosome
b) inhibiting initiation of translation
c) inhibiting peptidyl transferase
d) inhibiting translocase enzyme

42- Which of the following biomolecule has self-repair mechanisms?
a) DNA,RNA and protein
b) DNA and RNA
c) DNA only
d) DNA and proteins

43- Which of the following chemicals induce depurination
a) methyl ethane sulphonate (MES)
b) nitrosoguanidine
c) ethyl ethane sulphonate (EES)
d) all of these

44- Which of the following mechanism of DNA polymerase helps in preventing error during DNA replication
a) rechecking
b) proof checking
c) proof reading
d) all of these

45- The proteins involved in mismatch repair are
a) Mut S
b) Mut H
c) Mut L
d) all of these

46- Which of the following dimer formation is most common
a) thymidine dimer
b) cytidine dimer
c) both a and b
d) none of these

47- Dimer repair mechanism include
a) excision repair
b) photoreactivation
c) recombinational repair
d) all of these

48- Thymine dimers are often corrected by light induced repair mechanism. The enzyme involved in the process is
a) photolyase
b) photoligase
c) DNA glycosylase
d) All of these

Scanned by CamScanner

49- Which of the following is dark repair
a) nucleotide excision repair (NER)
b) base excision repair (BER)
c) both a and b
d) none of these

50- DNA glycosylase is an enzyme involved in base excision repair. The function is
a) addition of correct base
b) addition of correct nucleotide
c) removal of incorrect base
d) removal of phosphodiester bond

51- Recombinational repair is often due to
a) incorporation of many incorrect nucleotides by DNA polymerase
b) many cytidine dimer and associated large gaps in a strand
c) many thymidine dimer formation and associated large gaps in a strand
d) all of these

52- Which is the DNA polymerase involved in BER
a) DNA polymerase α
b) DNA polymerase β
c) DNA polymerase σ
d) DNA polymerase Ɛ

53- Which of the following is a bypass repair system
a) BER
b) NER
c) SOS
d) Recombinational repair

54- DNA repair mechanism is absent in
a) nuclear genome
b) mitochondrial genome
c) chloroplast genome
d) both b and c

55- umu C, umu D gene family and Rec A proteins are involved in
a) BER
b) NER
c) SOS repair
d) Recombinational repair

56- The distortion in DNA helix due to pyrimidine dimer formation is called as
a) nick
b) single stranded breaks
c) kink
d) none of these

Scanned by CamScanner

57- Prainsulin modification doesn't involve:

a) Formation of 2 peptide chain
b) Formation of peptide C
c) Carboxylation

Yousra M.SH

58- Pantathonic acid helps in process of :

a) Decarboxylation
b) Reduction
c) Oxidation

59- DNA methylation is a mechanism for changing:

a) The bases sequence of tRNA, with altering its coding function
b) The bases sequences of RNA, with altering its coding function
c) The bases sequences of DNA, without altering its coding function
d) The bases sequences of DNA, with altering its coding function

60- Topoisomerases are enzymes that can:

a) Untwist the bases of DNA or RNA to serve as a template
b) To relax or insert supercoils
c) To add prime
d) To remove the prime

Scanned by CamScanner

4	F	8	1	12					

Molecular

MCQs

No.	Answer	No.	Answer	No.	Answer	No.	Answer	No.	Answer
1	B	13	D	25	B	37	B	49	C*
2	C*	14	C	26	D	38	B	50	C
3	A	15	A	27	D* , B*	39	C	51	C* , A*
4	C	16	B	28	B	40	D	52	B
5	B* , A*	17	A	29	B	41	A	53	C*
6	A*	18	C	30	C	42	C	54	D
7	A	19	C	31	B	43	D	55	C*
8	A	20	D	32	C	44	C*	56	C
9	D	21	A	33	C	45	D	57	
10	D	22	C	34	B	46	A	58	
11	D	23	C	35	C	47	D*	59	
12	D	24	D	36	C	48	A*	60	

Scanned by CamScanner

Q_2. Answer the following :

1- Stimulation of insulin and glucagon secretion after protein meals (comment)
2- Absorption of primary and secondary bile acid
3- Importance of colipase

Q_3. Write the suitable word for each of the following statements :

1- The control the development of organ during early embryogenesis .....
2- They are acting as silencer for gene expression and /or mRNA translation and considered as genome immune system .....
3- In prokaryote called Oric and in eukaryotic called autonomous replicating sequences .....
4- The protein assembly at the origin of replication .....
5- In higher organisms is protective and defects in it result in inherited disease and cancer .....
6- Adenine of one strand of DNA will pair with thymine of the opposite strand by two hydrogen bonds while guanine will pair with cytosine by three hydrogen bonds..... .....
7- They are the precursor molecules that can generate mRNA and tRNA .....
8- One function of it may serve as an entry site for RNA polymerase .....
9- Corrects error made when DNA is copied .....
10- Used to replace regions of damaged DNA up to 30 bases in length .....
11- Permanent change in DNA .....
12- Special sequence present at the end of DNA and not carry any genetic information .....
13- The process of synthesis of RNA from DNA template .....
14- A particular region at which RNA polymerase binds to DNA .....
15- An important mechanism for repairing damage DNA as a result of ionizing radiation or oxidative free radical generation .....
16- An amino acid may have more than one codon .....

molecular

الممسوحة ضوئيا بـ CamScanner

First: molecular biology

1-The genetic code is:

a) Ambiguous
b) Overlapping
c) Degenerate
d) None specific
e) None of the above

2- In contrast to DNA polymerase, RNA polymerase:

a) Fills the gap between Okazaki fragments
b) Works only in the 5'to 3'direction
c) Edits as it synthesizes
d) Synthesize RNA primer to initiate DNA synthesis
e) Adds nucleoside monophosphates to the growing polynucleotides

3- A promoter site on DNA:

a) Transcribes repressor
b) Initiates transcription
c) Codes for RNA polymerase
d) Regulates termination
e) Translates specific protein

4. The portion of DNA which is transcribed but not translated is called:

a) Insert
b) Intron
c) Vector
d) Exon
e) Ribozyme

5. Which of the following sequences is complementary to TGGCAGCCT:

a) TCCGACGGT
b) ACCGTCGGA
c) ACCGUCGGA
d) AGGCTGCCA
e) TGGCTCGGA

6. tRNA reacts specifically with:

a) Specific aminoacyl-adenylates
b) ATP
c) Free amino acids
d) The Golgi apparatus
Nuclear DNA

7. The polymerase chain reaction (PCR) requires:

a) A double stranded DNA at least partially of known sequence
b) A synthetic non-complementary RNA
c) Dideoxynucleotide triphosphates
d) Reverse transcriptase
e) A pair of specific mismatched DNA primer

8-PRPP is:

a) An intermediate in de novo purine biosynthesis
b) Involved in biosynthesis of NAD+ and NADP+
c) An intermediate in pyrimidine biosynthesis
d) Intermediate in the salvage pathway
e) All of the above is correct

9- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5'to 3' direction
b) Temple strand is read in a 3' to 5' direction
c) Lagging strand synthesis is discontinuous
d) Synthesis occurs in both strands
e) It is a conservative process

10-phosphoribosyl-1-pyrophosphate (PRPP) is an intermediate in:

a) The de novo synthesis of purine nucleotides
b) The de novo synthesis of pyrimidine nucleotides
c) The salvage pathway for the synthesis of purine nucleotides d) Both A and C
e) All of the above are correct

11- The sigma subunit of prokaryotic RNA polymerase:

a) Is required to hold the subunits of the core enzyme together
b) Remains with the RNA polymerase until the termination of transcription
c) Is required for proper recognition of promoter
d) Contains the active site for RNA synthesis
e) Is required for termination of transcription

12- An anticodon is:

a) The part of DNA molecule that codes termination
b) A 3-nucleotide sequence of messenger RNA molecule
c) A specific nucleotide sequence of a tRNA molecule
d) A nucleotide triplet of a ribosomal RNA molecule
e) Covalently bound to colon

13- The polymerase chain reaction (PCR) requires:

a) A double stranded DNA of totally unknown sequence
b) A pair of synthetic RNA primers
c) Dideoxynucleotide triphosphates
d) Reverse transcriptase
e) Both B and D are correct

14- In lagging DNA strand:

a) There are several RNA primers
b) DNA synthesis is discontinuous
c) Polymerization proceeds in 5'3' direction
d) DNA polymerase III is needed
e) All of the above is correct?

15- Which of the following statements about DNA ligase is correct?

a) DNA ligase seals the gaps between RNA primers and Okazaki fragments
b) DNA ligase makes single stranded nicks which relieve the supercoiling

c) The energy source for DNA ligase can be either NADPH or GTP depending d) on the species

e) DNA ligase joins the free 3' hydroxyl on the Okazaki fragment to the 5' f) carbon on the growing strand

f) It is classified as endonuclease enzyme

16- DNA synthesis and RNA synthesis differ in:

a) Production of a complementary polynucleotide from a template

b) Release of pyrophosphate as a reaction product

c) Synthesis proceeds in the 5' to 3' direction

d) Proofreading to eliminate errors

e) First nucleotides incorporated are RNA

17-The Polymerase Chain Reaction

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for DNA replication

All of the above is correct

18- Initiation of protein biosynthesis:

a) Involves elongation factor 2

b) Starts by association of the two ribosomal units

c) Requires binding of the ternary complex to 40S subunit

d) Does not involve association of the two ribosomal subunits e) Requires CTP

19- Amino-acyl-tRNA synthetase:

a) Recognizes codons on mRNA

b) Recognizes the anti-codon on the tRNA

c) Catalyses the binding of amino acid to its respective tRNA

d) Recognizes the Darm of the specific tRNA

e) Both C and D are correct

20- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a

5' to 3' direction

b) Template strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) Synthesis occurs in both strands

e) It is a conservative process

21- Which of the following is needed for a polymerase chain reaction?

a) A thermostable DNA polymerase

b) Helicase

c) Primase?

d) One of the target DNA strands

e) Reverse transcriptase

22- The following is true about DNAdependent RNA polymerase:

جامعة صنعاء اللجنة العلمية C_37 HUMAN MEDICINE

a) Pol I is responsible for synthesis of rRNA and it is less sensitive to alphab) amanitin

c) Pol II is responsible for synthesis of mRNA

d) Pol III is responsible for synthesis of tRNA

e) RNA Polymerases have unwindase activity

f) All of the above is correct

23- In eukaryotes, hnRNA's undergo elaborate post-transcriptional processing as follows:

a) tRNA is charges with its respective amino acids

b) mRNA is capped at the 5' end

c) rRNA is polyadenylated at the 3' end

d) Intron sequences are spliced by snRNA's

e) Exons are removed and intros are ligated

24- Reverse transcriptase exhibits the following functions:

A) RNA directed DNA synthesis

b) DNA dependent RNA synthesis

c) DNA dependent DNA synthesis

d) Proofreading of cDNA

e) None of the above is correct

25- Transcriptional Activator Proteins:

a) Transcribe a messenger off a DNA template

b) Bind to ribosomes to activate the production of specific proteins

c) Are produced during an infection of bacteria by a phage

d) Are essential to function of transfer RNA's during translation

e) Bind regions near a eukaryotic gene and allows an RNA polymerase to

26- transcribe a gene 26- The Wobble Hypothesis says:

a) There is loose pairing between the 5' end of a single codon and the 3' end of b) more than one anticodon

c) There is loose pairing between the 5' end of a single anticodon and the 3'

d) end of more than one codon

27-What effect would this mutation most likely cause?

a) The RNA will not be translated

b) The RNA transcribed from the gene will be much longer than normal

c) The polypeptide produced will be shorter than expected

d) The polypeptide produced will have extra amino acids e) No effect at all

28- What is the maximum number of amino acids in a peptide coded by the polyribonucleotide

a) Six

b) Two

c) Three

d) Four

e) Five

جامعة صنعاء كلية الطب – قسم الطب البشري
اللجنة العلمية C_37
HUMAN MEDICINE

29- All of the following statements about ribosomes are correct except:

a) All ribosomes have two subunits

b) Eukaryotic cells have 80S ribosomes and protein synthesis on these

c) ribosomes can be inhibited by cycloheximide

d) Prokaryotic cells have 70S ribosomes and protein synthesis on these

e) ribosomes can be inhibited by chloramphenicol

30- Which of the following is mimicked by the antibiotic puromycin?

a) Peptidyl-tRNA

b) Aminoacyl-tRNA

c) Peptidyl transferase

d) Translation release factors

e) Formylmethionyl-tRNA

31-. Deamination of cytosine in mRNA produces:

a) An insertion mutation

b) A deletion mutation

c) A point mutation

d) A purine

e) Thymine

32-which of the following mutations would be the LEAST likely to result in a faulty protein?

a) A single base change in codon 12 complementary to nucleotide 36 in mRNA

b) A nonsense mutation in the codon for amino acid 37

c) Deletion of three bases of the codon for amino acid 19

d) A single base change such that amino acid 12 is now leucine rather than

33- Transcription of genes that code for proteins is accomplished by:

a) RNA polymerase III in eukaryotes

b) Reverse transcriptase

c) RNA polymerase I in eukaryotes

d) Both A and B are correct

34- The requirements of RNA polymerase for synthesis of RNA include:

a) RNA primer

b) DNA template

c) All four deoxyribonucleoside triphosphates

d) Both A and B

e) Both B and C

35-In PCR:

a) The technique is used for DNA cloning

b) RNA polymerase is needed

c) Primers should be in excess

d) All steps are performed at room temperature

e) Radiolabeled probe is needed

36- Which of the following molecules is NOT a component of the 43S preinitiation complex?

اللجنة العلمية C-37 HUMAN MEDICINE

a) GTP

b) Eukaryotic initiation factor 2 (IF-2)

c) mRNA[1]

d) Methionyl-tRNA

e) 40S sub-unit

37-Which of the following uses ATP directly?

a) Formation of the 40S initiation complex

b) Binding of the amino acyl transfer RNA to the ribosome

c) Synthesis of amino acyl-tRNA

d) Activation of the amino group for peptide bond synthesis

e) Movement of mRNA on the ribosome

38- A mRNA coding for eukaryotic polypeptide chain is attached to seven ribosomes, which of the following is TRUE for this polyribosome complex?

a) The ribosome nearest to the 5' end of the mRNA is carrying a longer b) polypeptide chain than is the ribosome nearest to the 3' end

c) The ribosome nearest to the 3' end of the mRNA is carrying a longer d) polypeptide chain than is the ribosome nearest to the 5' end

39- In general, eukaryotic RNA processing can be best described by the following:

a) All RNA transcripts are finally processed in the nucleus

b) It results in the addition of nucleotides to the primary transcript of c) ribosomal RNA

d) It results in the addition of formyl groups to methionine

e) It includes the addition of a tail of polyadenylic acid at the 5' end

f) It includes the modification of nucleotides in transfer RNA

40- Topoisomerase enzymes are important in the replication of DNA because they:

a) Covalently join Okazaki fragments

b) Relax supercoiled DNA created by helicase action

c) Degrade nucleosomal histones

d) Proofread newly synthesized DNA

e) Synthesize the RNA primer

41- Which of the following is not true for both DNA polymerase and RNA polymerase?

a) Both require a template

b) Both reactions produce pyrophosphates as a product

c) Both add 5' nucleotides to 3' hydroxyl groups

d) Both utilize 5' nucleoside triphosphates as substrates e) Both require a primer

42- Codons on mRNA may be accurately described by all of the following except:

a) They are read in a non-overlapping fashion

b) They can form hydrogen bonds with tRNA

c) An amino acid can have more than one codon

d) 6 successive bases along the mRNA can code for 4 amino acids

e) The same codon specifies the same amino acid in almost all species

43-. The RNA primer in replication differs from other RNA molecules in that it:

a) Contains T instead of U

b) Is formed by DNA polymerase I

c) Found in a form of DNA-RNA doublestranded hybrid

d) Contains a triphosphate group at the
5' end immediately after synthesis

e) Is synthesized in the 3' 5' direction

44- The role of peptidyl transferase in protein biosynthesis is to:

a) Promote the movement of peptidyltRNA from the A site to the P site on the ribosome

b) Promote the movement of aminoacyl-tRNA from the P site to the A site on the ribosome

c) Catalyze the ejection of free tRNA from the P site on the ribosome

d) Catalyze the formation of peptide bonds

e) Cause recognition of termination codons by release factors

45- How does chloramphenicol work to inhibit protein synthesis?

a) It binds to 23S rRNA?

b) It causes mutations in mRNA making it unusable

c) It intercalates into the DNA blocking
RNA polymerase

d) It binds to the sigma factor preventing initiation

e) It inhibits the peptidyl-transferase activity of 28S (a component of 60S subunit)

46- The following is not true about polymerase chain reaction:

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for in vivo replication

e) All of the above is correct

47- The polymerase chain reaction (PCR)

a) Uses flanking primers

b) Uses restriction enzymes

c) Uses varying temperatures

d) All of the above

e) Both A and C

48- If the PCR reaction is 100% efficient, one copy of template DNA should be amplified to ……. copies after n cycles:

a) 2n

b) n2

c) 2n

d) 10n

e) I can't tell having this information

49- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a
5' to 3' direction

b) Template strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) A primer is not required

e) Synthesis occurs in both strands

50- Select the incorrect statement. Messanger RNA:

a) Is translated in the direction 5'to 3'

b) Is often derived from a large precursor by processing in eukaryotes

c) Is synthesized in the direction 3' to 5'

d) Has a Poly A Tail

e) Is a Heterogeneous Molecule

51- In DNA Replication:

a) The newly synthesized DNA strand is growing in direction 5'3'

b) DNA synthesis by the leading strand is continuous

c) DNA Helicase facilitates processive unwinding of double strands d)

Origin of replication is identified by double strand DNA binding protein

d) All of the above is correct?

Full the blanket:

Q. Write the suitable word for each of the following statements:

1- The control the development of organ during early embryogenesis .....

2- They are acting as silencer for gene expression and /or mRNA translation and considered as genome immune system…….

3- In prokaryote called Oric and in eukaryotic called autonomous replicating sequences……

4. The protein assembly at the origin of replication……

5. In higher organisms is protective and defects in it result in inherited disease and cancer .....

6- Adenine of one strand of DNA will pair with thymine of the opposite strand by two hydrogen bonds while guanine will pair with cytosine by three hydrogen bonds……

7- They are the precursor molecules that can generate mRNA and tRNA …….

8- One function of it may serve as an entry site for RNA polymerase……

9. Corrects error made when DNA is copied .....

10- Used to replace regions of damaged DNA up to 30 bases in length……

11-Permanent change in DNA .....

12- Special sequence present at the end of DNA and not carry any genetic information .....

13- The process of synthesis of RNA from DNA template .....
14-A particular region at which RNA polymerase binds to DNA .....
15-An important mechanism for repairing damage DNA as a result of ionizing radiation or oxidative free radical generation .....
16-An amino acid may have more than one codon .....
17-pseudogene can be defined as …….
18-the most methylated base is …… and……...
19-the prime can be defined as.....
20-the initiation of replication in prokaryotic is..... while initiation codon in translation is……
21-nick translation can be defined as.....
22-the main cause of mutation
a- …… B- ……
23-some feature of codon are: ..... a-
b-…….. c-……
24-non-sense mutation mean……
25-mismatch repair correct error made from..... but excision repair correct
error made by.....
26-the pyrimidine dimer induced by UV can be repair by .....
27- Genetic codon define as .....
28-. Mismatch repair made with errors during .....
29-. The site of initiation during replication in eukaryote cells called .....and in prokaryote cells called ……..
30-. The post transcriptional modification of mRNA are .....and .....

31. Degeneracy of the genetic codon define as .....
32-. Palindrome sequence is .....
33-. Leading strand define as .....
34-. Types of supercoiling of linear DNA .....
35- Homo gene can be define as .....
36-Central dogma is .....
37-pseudogene Can be defined as……..
38- Then prime can be defined as me ……..
39-The initiation site of replication in prokaryotic cell is……..
40- Non acceptable missense occur when…….
41-. Nucleotide excision repair correct error made by……..
42-Non sense Mutation is
43-Mismatch repair correct error Cause by …… but pyrimidine dimer repair is……..
44-. Replication means……..
45- the second stage of replication is ……
46-function of polymerase. is proofreading which mean.....
47-Code gene Can be defined as…….
48-Function of 53 exoneuclease is …….. while function of 3-5 exoneuclease is …….

الإجابات:

1- homeotic gene
2-small interference RNA
3-origin of riplication
4-Replisomes

اللجنة العلمية C-37 HUMAN MEDICINE

5- methylation process of DNA
6- chargaff's rule or Base pairing
7-ht.nuclear RNA
8-Inherence
9- Mismatch repair
10- Nucleotide excision repair
11- Mutation
12- Telomeres
13-transcription
14-promoters
15-Double strand break repair
16-degeneracy of genetic code
17-not expressed gene

Fill the blanks:

1- imprinting in molecular biology refer to ....
2-proteins required to initiate replication is called ...
3-the sequence caping into end of DNA and can't carry any genetic information called....
4-mojar product of RNA polymerase II is ....
5- modification of DNA is ....
While RNA is .....
6-primary RNA transcript is called .....
7-wobble rule is .....
8-according to polarity of nucleotide , the strands of double helix run in .....

9- If codon has first base A or C thehe base pairing is .... To anticodon .
10-process involve in elongation is..... and.....
11-addition and deletion of bases in an alternation is ..... so results in .....
12- Thymin Thymin dimmer occurs that lead to ..... which is repaired by.....
13-Depurination and deamination correct by ...
14-Dna mutation is expressed as.....
15-th codon containing the changed base may become .....
16-Premature termination of replication and formation of fragile DNA is a result of ....
17-If tautomerization occurs during replication of DNA it will result in .....
18-..... is normal genes but not expressed
19-methylation of dna in higher organism is..... and defects in methylation process result in.....
20- The signals termination of transportation is done by either..... or.....

Essays :

Write short note on the following:
1-siRNA
2-second step in replication
3- termination of transcription by p(RHO) protein.
4-Enumerate the Mechanism of DNA repair
5- illustrate the 4th step of translation
6-write about :
-non –sense mutation
-degenerate codon
7-DNA polymerase enzyme
8-five properties of genetic code.

essays of molecular

1. importance of acetylation, phosphorylation and ribosylation
2. tautomeriziations of bases
3. transcriptional modifications of mRNA

جامعة صنعاء
كلية الطب – قسم الطب البشري
المستوى الثاني
٢٠٢٠-٢٠٢١ م

اللجنة العلمية C-37
HUMAN MEDICINE

اللجنة العلمية C-37
HUMAN MEDICINE

نادر حميد العامري

RESPIRATION

1- Write about the following :-

1. Damage that is produced by reactive oxygen species.
2. Coenzyme (CoQ).

2- Choose the correct answer :-

1. Oxidizing or reducing agent may exist as :
   1) Oxidant form only. 2) reduced form.
   3) Conjugate pair of oxidant and reductant form.
   4) None of these.

2. In the first step of oxidation one NADH.H+ :
   1) 4 electrons transfer to CoQ. 2) 2 electrons only transfer to FMN.
   3) 2 electrons and 2 protons transfer to FMN.
   4) 4 protons transfer to cytochrom c.

Loay Al Bokari

3. Enzymes catalyzes transfer and incorporated of oxygen into substrate are :
   1) Oxidases enzymes. 2) oxygenases enzymes.
   3)catalases enzymes. 4) peroxidases enzymes.

4. Cytochrome P450 is a member of which family of oxidoreductases :
   1) Catalaeses. 2) hydroperoxidase.
   3)dehydrogenases. 4) oxygenases.

Scanned by CamScanner

5. in the respiratory chain the relatively most electropositive molecule is :

1) NADH+H.

2) FMN.

3) cytochrome b.

4) O_2.

6. the chemiosmotic hypotheses proposes that ATP is formed because :

1) the inner mitochondrial membrane becomes permeable to protons.

2) the inner mitochondrial membrane becomes permeable to electrons.

3) the inner mitochondrial membrane becomes rich in high energy protein complex.

4)a protein gradient is formed across the inner membrane..

7. if the ΔG° of a reaction is negative , this means :

1) the reaction can proceed reversibly.

2)the reaction needs a source of energy to proceed.

3) the free energy of reactant is more than the product.

4) none of the above.

Scanned by CamScanner

Cellular respiration :

Choose the correct answer in each of the following :

1) Oxidation :
   a) Is gain of electrons
   b) Loss of hydrogen
   c) Loss of oxygen
   d) All of these
2) Characteristics of free radicals :
   a) Short lived
   b) inactive
   b) stable
   d) both a &c
3) free radicals :
   a) include free radicals and antioxidants
   b) increase during chronic infection
   c) decrease during strenuous exercise
   d) all of these
4) protein carbonyl :
   a) indicator of free radicals damage
   b) indicator of protein damage
   c) indicator of oxidative stress
   d) all of these
5) endogenous antioxidants :
   a) vitamin E
   b) ascorbic acid
   c) metal binding proteins
   d) caratenoids

Loay Al Bokari

6) five kilo calorie is the amount of energy needed to raise the temperature :
   a) of one liter of water from 20co to 21co
   b) of one liter of water from 20co to 24co
   c) of one liter of water from 21co to 26co
   d) one of liter of water from 20co to 30co
7) oxidases :
   a) catalyze the removal of hydrogen from substrate
   b) use oxygen as hydrogen acceptor
   c) produce water (H_2O) or hydrogen peroxide (H_2O_2)
   d) all of these
8) inhibitors for complex III :
   a) amytal b) cyanide c) antimycin d) caratenoids
9) uncouplers:
   a) compounds dissociate oxidation in respiratory chain from phosphoryaltion
   b) 2-4-Dinitrophenol c) both A & B d) none of the above

Scanned by CamScanner

Cellular respiration

Choose the correct answer in each of the following

1-Oxidation

A) Is gain of electrons (B) Loss of hydrogen)

C) Loss of oxygen (D) All of these)

2-Characteristics of free radicals

(A) Short lived

C) Inactive (B)Stable)

3-Free radicals (D) Both B and C)

A) include free radicals and antioxidants (B) increase during chronic) infection

C) decrease during strenuous exercises (D) All of these)

4-protein carbonyl

A) indicator of free radical damage (B) indicator of protein damage)

C)) indicator of oxidative stress (D) All of these)

5-Endogenous Antioxidants

A) Vitamin E (B) Ascorbic acid)

(C) Metal Binding Proteins (D) Caratenoids)

6-Five kilo calorie is the amount of energy needed to raise the temperature

A) Of one liter of water from 20co to 21co (B) Of one liter of water from 20co) to 24co

(C) Of one liter of water from 21co to 26co (D) Of one liter of water from 20co) to30co

7-Oxidases

A) catalyze the removal of hydrogen from substrates)

B) Use oxygen as hydrogen acceptor)

C) produce water (H2O) or hydrogen peroxide (H2O2) (D) All of these)

8-Inhibitors for complex III-

A) Amytal

(C) Antimycin (B) Cyanide)

(D) Carotenoids)

9-Uncouplers-

compounds dissociate oxidation in respiratory chain from phosphorylation)

2-4-Dinitrophenol (C) Both(A) and (B) (D) None of these

Scanned by CamScanner

21/12/2016 Tuesday

Respiration Questions

21 TUESDAY

Q1: Define cellular respiration.

Q2:- The most powerful natural antioxidant is:-
a) Caffiene → uric acid
b) Vit. C
c) β carotene
d) Vit. E

Q3: Write what you know about coenzyme Q.

Q4:- Choose the best correct answer:

1. Oxidizing or reducing agent may exist as:
a) oxidant form only
b) reduced form only
c) conjugainted pair of oxidant & reductant form
d) none of the above

2. H_2O_2 is considered a free radical due to:
a) is present in high concentration
b) it is toxic molecule
c) highly reactive molecule
d) both B & C

3. In the first step of oxidation one $NADH^+H$
a) ~~[illegible]~~ 4ē transfer to CoQ
b) 2ē ~~[illegible]~~ only transfer to FMN
c) 2ē and 2 protons transfer to FMN
d) 4ē transfer to cytochrome C

REMINDERS

WEEK 3

Scanned by CamScanner

4. Enzymes that catalyze transfer and incorporate Oxygen into substrate of which one:
   a) oxidases enzymes
   b) catalyzes ~
   c) oxygenases ~
   d) peroxidases ~

5. Cytochrome P450 is a member of which family of oxidoreductases:
   a) catalyzes
   b) hydroperoxidases
   c) dehydrogenases
   d) oxygenases

Scanned by CamScanner

Subject:

2- The more the positive the E_o, the greater the tendency of the oxidant member of that pair to:

A) lose electron
B) Gain electron ✓
C) lose or gain electron
D) lose & gain electron

3- The negative standard reduction potential of redox pair such as $NAD^+/NADH$ has a greater tendency to:

A) lose electron ✓
B) gain electron
C) lose or gain electron.
D) lose & gain electron.

Scanned by CamScanner

4- The transport of a pair of electrons from NADH to O_2 via electron transport chain produce :-

A) -52,700 Cal. ✓
B) -20,580 cal.
C) +21,900 Cal.
D) +52,7 KCal.

5- The free energy of hydrolysis of terminal phosphat group of ATP is:-

A) -7,3 kCal/mol ✓
B) -8,300 cal/mol
C) 10,000 cal/mol
D) +7,3 cal/mol

6- The free energy change, ΔG :-

A) If ΔG is a positive number, the reaction is exergonic
B) is equal to zero at equilibrium
C) can only be calculated when the reactents & products are present at 1mol/1 Concentration.
D) is equal to $-RT \ln keq$. ✓

Scanned by CamScanner

Subject:

7- Sufficient energy required to produce 3ATP & 3Pi. is :-

A) -21,900 Cal ✓
B) -29,900 Cal
C) -31,900 Cal
D) -52,700 Cal

8- The oxidation-reduction system having the highest redox potential is :-

A) Ubiquinone ox/red
B) Fe^{+3} cytochrome a/Fe^{+2} ✓
C) Fe^{+3} cytochrome b/Fe^{+2}
D) NAD^+ / NADH

9- The compound having the lowest redox potential amongest the folowing is :-

A) Hydrogen ✓
B) NAD
C) Cytochrome b
D) Cytochrome a

10- All the following compounds are members of electron transport chain except :- A) Ubiquinone
B) Carnitine ✓
C) NAD
D) FAD

Scanned by CamScanner

Subject:

11- The redox carrier are grouped into respiratory chain complex:
A) In the inner mitochondrial membrane ✓
B) In mitochondrial matrix
C) on the outer mitochondrial membrane
D) on the inner surface of outer mitochondrial membrane.

12- The respiratory chain complexes acting as proton pumb are :-
A) I, II and III
B) I, II and IV
C) I, III and IV ✓
D) I, II

13. The correct sequence of cytochrome carrier in respiratory chain is:-
A) Cyt b - Cyt C - Cyt C1 - Cyt aa3
B) Cyt aa3 - Cyt b - Cyt C - Cyt C1
C) Cyt b - Cyt C1 - Cyt C - Cyt aa_3 ✓
D) Cyt b - Cyt aa3 - Cyt C1 - Cyt C

14- A component of the respiratory chain in mitochondria is:-
A) Coenzyme Q ✓
B) Coenzyme A
C) Acetyl Coenzyme
D) Coenzyme containing thiamin

Scanned by CamScanner

Subject:

15. Reducing equivalents from succinate enter the mitochondrial respiratory chain at :-

A) Complex I

B) Coenzyme Q ✓

C) Complex III

D) Cyt C

16. Activity of cytochrom oxidase is inhibited by :-

A) Sulphite

B) Zinkc

C) Arsenite

D) Cyanide ✓

17. All of the following statements about the enzyme complex that carries out the ATP synthesis during oxidative phosphorylation are correct except :-

A) It is located on the matrix of mitochondria ✓

B) It is inhibited by oligomycin

C) It can exhibit ATPase activity.

D) It is a large, complex membrane-embedded enzyme that formed from two subunits (F1 & F0)

Scanned by CamScanner

Subject: / /

18. Electron transport & phosphorylation can be uncoupled by compounds that increase the permeability of the inner mitochondrial membrane to:-

A) Electrons
B) Protons ✓
C) Uncouplers
D) All of these

19. Cytochrome oxidase contains:-

A) Zn^{+2}
B) Fe^{+2}
C) Mn^{+2}
D) Cu^{+2} ✓

20. The number of ATP produced in the oxidation of 1 molecule of NADPH in oxidative phosphorylation is:-

A) Zero ✓
B) 2
C) 3
D) 4

Scanned by CamScanner

Subject:

21- Rotenone inhibits the respiratory chain at :-

A) Cyt C1 → Coenzyme Q

B) NAD → Coenzyme Q ✓

C) Coenzyme Q → Cyt b

D) Cyt b → Cyt C1

22- An uncoupler of oxidative phosphorylation such as dinitrophenol :-

A) inhibit electron transport and ATP synthesis

B) Allows protons (H^+) to enter into the matrix without ATP synthesis ✓

C) Inhibit electron transport without imparment of ATP synthesis

D) Specially inhibit Cytochrome b

23- The superoxide dismutase is dependent ~~of~~ on the following trace element :-

A) Mg^{++}

B) Mn^{++} ✓

C) Co^{++}

D Fe^{++}

Scanned by CamScanner

Subject:

24- Cytosolic Glutathione peroxidase Contains:-

A) Selenium ✓
B) Manganese
C) Magnesium
D) Cooper

25- The most important natural antioxidant is:-

A) Vitamin D
B) Vitamin E ✓
C) Vitamin B_{12}
D) Vitamin K

26- A trace element having antioxidant function is:-

A) Selenium ✓
B) Tocopherol
C) Chromium
D) Molybdenum

27- The following reaction:

$O_2^{\cdot-} + O_2^{\cdot-} + 2H^+ \longrightarrow H_2O_2 + O_2$ is Catalyze by:-

A) Superoxide dismutase ✓
B) Glutathione peroxidase
C) Catalase
D) Glutathione reductase

Scanned by CamScanner

First : RESPIRATION (20 MARKS)

Choose the best correct answer :

1- When inhibitors bind to the respiratory chain :

A. ATP synthesis stop
B. Proton pumping into the inter-membrane space stop
C. the components after the site of the block still oxidized
D. all the above

2. Catalase enzyme is a member of :

A. Monooxygenase
B. Dehydrogenase
C. Hydroperoxidase
D. Oxidase

3. The most powerful natural antioxidant is :

A. Vitamin C
B. Caffeine
C. B-Carotene
D. Vitamin E

4. H2O2 is consider as free radical due to :

A. it is present in high concentration
B. it is highly reactive molecule
C. all the above
D. it is toxic radical

5. Transverse of NADH from cytochromes to the mitochondria occur by :

A. Cartinine shuttle
B. Malate Aspartate shuttle
C. Glycerol 3 phosphate shuttle
D. Both B & C

6. All these processes occur in the mitochondria EXCEPT :

A. Ketogensis
B. TCA
C. B-Oxidation
D. Glycolysis

Scanned by CamScanner

9. L-amino acid oxidase contains:

A. FAD
B. FMN
C. NADP
D. NAD

10. All the following statements about L-amino acid oxidase are true except:

A. It is a flavoprotien
B. It transfers hydrogen atoms from its substrate to oxygen forming water
C. It contains FMN as prosthetic group
D. Its prosthetic group is tightly bound to apoenzyme protein

11. Iron-porphyrin is present as prosthetic group in:

A. Cytochromes
B. Catalase
C. Peroxidase
D. All of the above

12. Enzymes which incorporate oxygen into a substrate are called:

A. Oxidases
B. Dehydrogenases
C. Oxygenases
D. Hydroperoxidases

13. Microsomal hydroxylase system contains a:

A. Di-oxygenase
B. Mono-oxygenase
C. Oxidase
D. Hydroperoxidase

14. A cytochrome present in microsomal hydroxylase system is:

A. Cytochrome a
B. Cytochrome b
C. Cytochrome a_3
D. None of the above

15. Superoxide radicals can be detoxified by:

A. Cytochrome c
B. Cytochrome b
C. Cytochrome a
D. None of the above

16. A copper containing cytochrome is:

A. Cytochrome a
B. Cytochrome P450
C. Cytochrome a_3
D. None of the above

Scanned by CamScanner

17. At sites of phosphorylayion in the respiratory chain, the minimum difference in the redox potentials of two consecutive components is:

A. 0.2 millivolts
B. 0.2 volts
C. 0.42 millivolts
D. 0.42 volts

18. When reducing equivalents enter the respiratory chain through NAD the P:O ratio is:

A. 1:2
B. 2:1
C. 1:3
D. 3:1

19. Rate of tissue respiration is raised when the intracellular concentration of:

A. ADP increases
B. ATP increases
C. ADP decreases
D. None of the above

20. Cyanide inhibits phosphorylation at:

A. Site I
B. Site II
C. Site III
D. None of the above

21. The following component of respiratory chain is not fixed in the inner mitochondrial membrane:

A. Coenzyme Q
B. Cytochrome c
C. Both of the above
D. Neither of the above

22. F_0 component of vectorial ATP synthetase is inhibited by:

A. Dinitrophenol
B. Rotenone
C. Cyanide
D. Oligomycin

23. Uncouplers of oxidative phosphorylation:

A. Inhibit F_0 component of vectorial ATP synthetase
B. Inhibit F_1component of vectorial ATP synthetase
C. Make the inner mitochondrial membrane permeable to H^+
D. Inactivate cytochromes

24. Extramitochondrial NADH can be oxidized in the respiratory chain with the help of:

A. Glycerophosphate shuttle
B. Malate shuttle

Scanned by CamScanner

C. Either of the above
D. Neither of the above

25. In some reactions, energy is captured in the form of:
A. GTP
B. UTP
C. CTP
D. None of the above

26. Substrate-linked phosphorylation occurs in:
A. Glycolytic pathway
B. Citric acid cycle
C. Both of the above
D. None of the above

27. Reducing equivalents move in the respiratory chain from:
A. Relatively electronegative to electropositive components
B. Lower redox potential to higher redox potential
C. Reduced substrate to oxygen
D. All of the above

28. Hydrogen peroxide may be detoxified in the absence of an oxygen acceptor by:
A. Peroxidase
B. Catalase
C. Both of the above
D. Neither of the above

29. All the following statements about hepatic microsomal hydroxlase system are correct except:
A. It metabolites several drugs
B. It contains cytochrome P-450
C. It contains a flavoprotein
D. It contains iron-sulphur protein

30. Superoxide radicals can be detoxified by:
A. Cytochrome c
B. Superoxide dismutase
C. Both of the above
D. Neither of the above

Scanned by CamScanner

1)Write about :

_How cyanide inhibit respiratory chain

_substrate level phosphorylation and give example .

2)Choose the best answer :

_When the(G) is negative that means :

-the reaction can proceed spontaneously

-the reactant has energy more than the product

-the reactant has energy less than the product

_The group of oxidoreductase which cytochrome P450 is related to is :

-oxygenate

-dehydrxylase

-oxidase

-hydroperoxidase

_All of the following are antioxidants except :

-H_2O_2

-vitamin C

-vitamin E

-catalase enzyme

_The protein complex is found in :

-outer membrane

-inner membrane

-inner membrane space

-mitochondria

9

Scanned by CamScanner

1)Choose the best answer :

_The oxidation of pyruvate to Acetyl Co A is inhibited by :

- increase ATP
- increase NADH+H
- increase Acetyl CoA
- increase TPP

_ATP is important for of the following except :

-synthesis of macromolecules

-muscle contraction

- support exergonic reactions

-active transport across the cell membrane

_The free energy change (▲G)depends on :

-nature and concentration of initial reactant

-nature and concentration of end product

-nature and concentration of reactants and products

-none of the above

_The negative(▲G) indicates :

-The reaction will proceeds reversibly

-The reactants have more energy than the products

-The reaction is in equilibrium .

12

Scanned by CamScanner

RESPIRATION

1- Write about the following :-

1. Damage that is produced by reactive oxygen species.
2. Coenzyme (CoQ)

2- Choose the correct answer :-

1. Oxidizing or reducing agent may exist as :

   1) Oxidant form only. 2) reduced form.

   3) Conjugate pair of oxidant and reductant form.

   4) None of these.

2. In the first step of oxidation one NADH.H+ :

   1) 4 electrons transfer to CoQ. 2) 2 electrons only transfer to FMN.

   3) 2 electrons and 2 protons transfer to FMN.

   4) 4 protons transfer to cytochrom c.

3. Enzymes catalyzes transfer and incorporated of oxygen into substrate are :

   1) Oxidases enzymes. 2) oxygenases enzymes.

   3)catalases enzymes. 4) peroxidases enzymes.

4. Cytochrome P_{450} is a member of which family of oxidoreductases :

   1) Catalaeses. 2) hydroperoxidase.

   3)dehydrogenases. 4) oxygenases.

Scanned by CamScanner

5. in the respiratory chain the relatively most electropositive molecule is :

1) NADHH+H.

2) FMN.

3) cytochrome b.

4) O_2.

6. the chemiosmotic hypotheses proposes that ATP is formed because :

1) the inner mitochondrial membrane becomes permeable to protons.

2) the inner mitochondrial membrane becomes permeable to electrons.

3) the inner mitochondrial membrane becomes rich in high energy protein complex.

4) a protein gradient is formed across the inner membrane.

7. if the ΔG° of a reaction is negative, this means :

1) the reaction can proceed reversibly.

2) the reaction needs a source of energy to proceed.

3) the free energy of reactant is more than the product.

4) none of the above.

Scanned by CamScanner

8. substrate level phosphorylation means :

1)formation of ATP in the respiratory chain.

2) formation of ATP from high energy compound.

3) formation of NADH+H from oxidation of food stuff.

4) none of the above.

9. the transfer of reducing equivalents through the respiratory chain depends upon :

1) the difference in their redox potential.

2) their content of iron in the form of ferrous.

3) their molecular weight.

4) all of the above.

10. in heme synthesis ALA synthase enzyme is :

1) catalyzing the formation of prophobilinogen.

2) catalyzing an irreversible exergonic reaction.

3)a mitochondrial enzyme.

4) both cytoplasmic and mitochondrial enzyme.

Scanned by CamScanner

1. 2. The genetic code is:
    a) Ambigeous
    b) Overlapping
    c) Degenerate
    d) None specific
    e) None of the above
2. In contrast to DNA polymerase, RNA polymerase:
    a) Fills the gap between Okazaki fragments
    b) Works only in the 5'to 3'direction
    c) Edits as it synthesizes
    d) Synthesize RNA primer to initiate DNA synthesis
    e) Adds nucleoside monophosphates to the growing polynucleotides
3. A promoter site on DNA:
    a) Transcribes repressor
    b) Initiates transcription
    c) Codes for RNA polymerase
    d) Regulates termination
    e) Translates specific proteins
4. The portion of DNA which is transcribed but not translated is called:
    a) Insert
    b) Intron
    c) Vector
    d) Exon
    e) Ribozyme
5. Which of the following sequences is complementary to TGGCAGCCT:
    a) TCCGACGGT
    b) ACCGTCGGA
    c) ACCGUCGGA
    d) AGGCTGCCA
    e) TGGCTCGGA
6. tRNA reacts specifically with:
    a) Specific aminoacyl-adenylates
    b) ATP
    c) Free amino acids
    d) The golgi apparatus
    e) Nuclear DNA
7. The polymerase chain reaction (PCR) requires:
    a) A double stranded DNA at least partially of known sequence
    b) A synthetic non-complementary RNA
    c) Dideoxynucleotide triphosphates
    d) Reverse transcriptase
    e) A pair of specific mismatched DNA primer

اللجنة العلمية للدفعة ٥٧ - طبية
HUMAN MEDICINE

8. 10. PRPP is:
    a) An intermediate in de novo purine biosynthesis
    b) Involved in biosynthesis of NAD+ and NADP+
    c) An intermediate in pyrimidine biosynthesis
    d) Intermediate in the salvage pathway
    e) All of the above is correct
9. 12. All of the following statements concerning replication of DNA in prokaryotes are true *except*:
    a) Synthesis of new strands occurs in a 5'to 3' direction
    b) Temple strand is read in a 3' to 5' direction
    c) Lagging strand synthesis is discontinuous
    d) Synthesis occurs in both strands
    e) It is a conservative process
10. 13. 5-phosphoribosyl-1-pyrophosphate (PRPP) is an intermediate in:
    a) The de novo synthesis of purine nucleotides
    b) The de novo synthesis of pyrimidine nucleotides
    c) The salvage pathway for the synthesis of purine nucleotides
    d) Both A and C
    e) All of the above are correct
11. 19. The sigma subunit of prokaryotic RNA polymerase:
    a) Is required to hold the subunits of the core enzyme together
    b) Remains with the RNA polymerase until the termination of transcription
    c) Is required for proper recognition of prometer
    d) Contains the active site for RNA synthesis
    e) Is required for termination of transcription
12. 20. An anticodon is:
    a) The part of DNA molecule that codes termination
    b) A 3-nucleotide sequence of messenger RNA molecule
    c) A specific nucleotide sequence of a tRNA molecule
    d) A nucleotide triplet of a ribosomal RNA molecule
    e) Covalently bound to colon
13. 21. The polymerase chain reaction (PCR) requires:
    a) A double stranded DNA of totally unknown sequence
    b) A pair of synthetic RNA primers
    c) Dideoxynucleotide triphosphates
    d) Reverse transcriptase
    e) Both B and D are correct
14. 28. In lagging DNA strand:
    a) There are several RNA primers
    b) DNA synthesis is discontinuous
    c) Polymerization proceeds in 5'→3' direction
    d) DNA polymerase III is needed
    e) All of the above is correct

اللجنة العلمية لكلية الطب البشري
HUMAN MEDICINE

15. 29. Which of the following statements about DNA ligase is correct?
    a) DNA ligase seals the gaps between RNA primers and Okazaki fragments
    b) DNA ligase makes single stranded nicks which relieve the supercoiling
    c) The energy source for DNA ligase can be either NADPH or GTP depending
    d) on the species
    e) DNA ligase joins the free 3' hydroxyl on the Okazaki fragment to the 5'
    f) carbon on the growing strand
16. e) It is classified as endonuclease enzyme
17. 30. DNA synthesis and RNA synthesis differ in:
    a) Production of a complementary polynucleotide from a template
    b) Release of pyrophosphate as a reaction product
    c) Synthesis proceeds in the 5' to 3' direction
    d) Proofreading to eliminate errors
    e) First nucleotides incorporated are RNA
18. 32. The Polymerase Chain Reaction
    a) Requires specific primers to amplify a DNA sequence
    b) Involves cyclic thermal denaturation and reannealing of DNA
    c) Helps diagnosing sub-clinical infections
    d) Exploits Taq polymerase for DNA replication
    e) All of the above is correct
19. 35. Initiation of protein biosynthesis:
    a) Involves elongation factor 2
    b) Starts by association of the two ribosomal units
    c) Requires binding of the ternary complex to 40S subunit
    d) Does not involve association of the two ribosomal subunits
    e) Requires CTP
20. 36. Amino-acyl-tRNA synthetase:
    a) Recognizes codons on mRNA
    b) Recognizes the anti-codon on the tRNA
    c) Catalyses the binding of amino acid to its respective tRNA
    d) Recognizes the Darm of the specific tRNA
    e) Both C and D are correct
21. 37. All of the following statements concerning replication of DNA in prokaryotes are true *except*:
    a) Synthesis of new strands occurs in a 5' to 3' direction
    b) Template strand is read in a 3' to 5' direction
    c) Lagging strand synthesis is discontinuous
    d) Synthesis occurs in both strands
    e) It is a conservative process
22. 38. Which of the following is needed for a polymerase chain reaction?
    a) A thermostable DNA polymerase
    b) Helicase
    c) Primase

اللجنة العلمية للطب البشري
HUMAN MEDICINE

d) One of the target DNA strands
e) Reverse transcriptase

23. 40. The following is true about DNA-dependent RNA polymerase:
    a) Pol I is responsible for synthesis of rRNA and it is less sensitive to alpha-
    b) amanitin
    c) Pol II is responsible for synthesis of mRNA
    d) Pol III is responsible for synthesis of tRNA
    e) RNA Polymerases have unwindase activity
    f) All of the above is correct
24. 41. In eukaryotes, hnRNA's undergo elaborate post-transcriptional processing as follows:
    a) tRNA is charges with its respective amino acids
    b) mRNA is capped at the 5' end
    c) rRNA is polyadenylated at the 3' end
    d) Intron sequences are spliced by snRNA's
    e) Exons are removed and intros are ligated
25. 42. Reverse transcriptase exhibits the following functions:
26. A) RNA directed DNA synthesis
27. b) DNA dependent RNA synthesis
28. c) DNA dependent DNA synthesis
29. d) Proofreading of cDNA
30. e) None of the above is correct
31. 44. Transcriptional Activator Proteins:
    a) Transcribe a messenger off a DNA template
    b) Bind to ribosomes to activate the production of specific proteins
    c) Are produced during an infection of bacteria by a phage
    d) Are essential to function of transfer RNA's during translation
    e) Bind regions near a eukaryotic gene and allows an RNA polymerase to
    f) transcribe a gene
32. 45. The Wobble Hypothesis says:
    a) There is loose pairing between the 5' end of a single codon and the 3' end of
    b) more than one anticodon
    c) There is loose pairing between the 5' end of a single anticodon and the 3'
    d) end of more than one codon
33. c) There is a loose pairing between the 3' end of a single anticodin and the 5'
    a) end of more than one codon
34. d) There is loose pairing between the 3' end of a single codon and the 5' end of
    a) more than one anticodon
35. e) Codons of a single amino acid differ mainly in the 3rd position, rarely in the
    a) 2nd position but never in the 1st position
36. 47. A mutation in structural gene that changes the UGA termination codon to UGG codon (trp). What effect would this mutation most likely cause?
    a) The RNA will not be translated

اللجنة العلمية للطب البشري
HUMAN MEDICINE

b) The RNA transcribed from the gene will be much longer than normal
c) The polypeptide produced will be shorter than expected
d) The polypeptide produced will have extra amino acids
e) No effect at all

37. 48. What is the maximum number of amino acids in a peptide coded by the polyribonucleotide 5' CCAUGUUUGGGUGAGGGCC3' in an in-vivo system starting from the first base?
    a) Six
    b) Two
    c) Three
    d) Four
    e) Five
38. 49. All of the following statements about ribosomes are correct *except*:
    a) All ribosomes have two subunits
    b) Eukaryotic cells have 80S ribosomes and protein synthesis on these
    c) ribosomes can be inhibited by cycloheximide
    d) Prokaryotic cells have 70S ribosomes and protein synthesis on these
    e) ribosomes can be inhibited by chloramphenicol
39. d) Mitochondria have 80S ribosomes and protein synthesis on these ribosomes
    a) can be inhibited by cycloheximide
40. e) The larger subunits of all ribosomes have the enzyme peptidyl transferase
    a) which forms peptide bonds
41. 50. Which of the following is mimicked by the antibiotic puromycin?
    a) Peptidyl-tRNA
    b) Aminoacyl-tRNA
    c) Peptidyl transferase
    d) Translation release factors
    e) Formylmethionyl-tRNA
42. 51. Deamination of cytosine in mRNA produces:
    a) An insertion mutation
    b) A deletion mutation
    c) A point mutation
    d) A purine
    e) Thymine
43. 52. In a gene (without introns) of a protein containing 300 amino acids (number 12 is serine), which of the following mutations would be the LEAST likely to result in a faulty protein?
    a) A single base change in codon 12 complementary to nucleotide 36 in
    b) mRNA
    c) A nonsense mutation in the codon for amino acid 37
    d) Deletion of three bases of the codon for amino acid 19
    e) A single base change such that amino acid 12 is now leucine rather than
    f) isoleucine
44. e) A single base change such that amino acid 12 is now aspartic acid rather

a) than leucine

45. 56. Transcription of genes that code for proteins is accomplished by:
    a) RNA polymerase III in eukaryotes
    b) Reverse transcriptase
    c) RNA polymerase I in eukaryotes
    d) RNA polymerase II in eukaryotes
    e) Both A and B are correct
46. 57. The requirements of RNA polymerase for synthesis of RNA include:
    a) RNA primer
    b) DNA template
    c) All four deoxyribonucleoside triphosphates
    d) Both A and B
    e) Both B and C
47. 58. In PCR:
    a) The technique is used for DNA cloning
    b) RNA polymerase is needed
    c) Primers should be in excess
    d) All steps are performed at room temperature
    e) Radiolabeled probe is needed
48. 61. Which of the following molecules is NOT a component of the 43S pre-initiation complex?
    a) GTP
    b) Eukaryotic initiation factor 2 (IF-2)
    c) mRNA
    d) Methionyl-tRNA
    e) 40S sub-unit
49. 63. Which of the following uses ATP directly?
    a) Formation of the 40S initiation complex
    b) Binding of the amino acyl transfer RNA to the ribosome
    c) Synthesis of amino acyl-tRNA
    d) Activation of the amino group for peptide bond synthesis
    e) Movement of mRNA on the ribosome
50. 64. A mRNA coding for eukaryotic polypeptide chain is attached to seven ribosomes, which of the following is TRUE for this polyribosome complex?
    a) The ribosome nearest to the 5' end of the mRNA is carrying a longer
    b) polypeptide chain than is the ribosome nearest to the 3' end
    c) The ribosome nearest to the 3' end of the mRNA is carrying a longer
    d) polypeptide chain than is the ribosome nearest to the 5' end
51. c) The 60S subunit of one ribosome and the 40S subunit of another ribosome
    a) may be exchanged during the synthesis process
52. d) All seven ribosomes are cooperating in the synthesis of one copy of the
    a) same polypeptide chain
53. e) The mRNA contains a series of separate binding sites for each ribosome to

اللجنة العلمية للدفعة ٣٥ بشري
HUMAN MEDICINE

a) initiate a polypeptide chain

54. 65. In general, eukaryotic RNA processing can be best described by the following:
    a) All RNA transcripts are finally processed in the nucleus
    b) It results in the addition of nucleotides to the primary transcript of
    c) ribosomal RNA
    d) It results in the addition of formyl groups to methionine
    e) It includes the addition of a tail of polyadenylic acid at the 5' end
    f) It includes the modification of nucleotides in transfer RNA
55. 66. Topoisomerase enzymes are important in the replication of DNA because they:
    a) Covalently join Okazaki fragments
    b) Relax supercoiled DNA created by helicase action
    c) Degrade nucleosomal histones
    d) Proofread newly synthesized DNA
    e) Synthesize the RNA primer
56. 67. Which of the following is not true for both DNA polymerase and RNA polymerase?
    a) Both require a template
    b) Both reactions produce pyrophosphates as a product
    c) Both add 5' nucleotides to 3' hydroxyl groups
    d) Both utilize 5' nucleoside triphosphates as substrates
    e) Both require a primer
57. 68. Codons on mRNA may be accurately described by all of the following *except*:
    a) They are read in a non-overlapping fashion
    b) They can form hydrogen bonds with tRNA
    c) An amino acid can have more than one codon
    d) 6 successive bases along the mRNA can code for 4 amino acids
    e) The same codon specifies the same amino acid in almost all species
58. 69. The RNA primer in replication differs from other RNA molecules in that it:
    a) Contains T instead of U
    b) Is formed by DNA polymerase I
    c) Found in a form of DNA-RNA double-stranded hybrid
    d) Contains a triphosphate group at the 5' end immediately after synthesis
    e) Is synthesized in the 3'→ 5' direction
59. 70. The role of peptidyl transferase in protein biosynthesis is to:
    a) Promote the movement of peptidyl-tRNA from the A site to the P site on
    b) the ribosome
    c) Promote the movement of aminoacyl-tRNA from the P site to the A site on
    d) the ribosome
60. c) Catalyze the ejection of free tRNA from the P site on the ribosome
61. d) Catalyze the formation of peptide bonds
62. e) Cause recognition of termination codons by release factors
63. 71. How does chloramphenicol work to inhibit protein synthesis?
    a) It binds to 23S rRNA

اللجنة العلمية للطب البشري
HUMAN MEDICINE

b) It causes mutations in mRNA making it unusable
c) It intercalates into the DNA blocking RNA polymerase
d) It binds to the sigma factor preventing initiation
e) It inhibits the peptidyl-transferase activity of 28S (a component of 60S
f) subunit)

64. 73. The following is not true about polymerase chain reaction:
a) Requires specific primers to amplify a DNA sequence
b) Involves cyclic thermal denaturation and reannealing of DNA
c) Helps diagnosing sub-clinical infections
d) Exploits Taq polymerase for in vivo replication
e) All of the above is correct

65. 74. The polymerase chain reaction (PCR)
a) Uses flanking primers
b) Uses restriction enzymes
c) Uses varying temperatures
d) All of the above
e) Both A and C

66. 77. If the PCR reaction is 100% efficient, one copy of template DNA should be amplified to ..... copies after n cycles:
a) 2n
b) n^2
c) 2^n
d) 10^n
e) I can't tell having this information

67. 79. All of the following statements concerning replication of DNA in prokaryotes are true *except*:
a) Synthesis of new strands occurs in a 5' to 3' direction
b) Template strand is read in a 3' to 5' direction
c) Lagging strand synthesis is discontinuous
d) A primer is not required
e) Synthesis occurs in both strands

68. 80. Select the incorrect statement. Messanger RNA:
a) Is translated in the direction 5'to 3'
b) Is often derived from a large precursor by processing in eukaryotes
c) Is synthesized in the direction 3' to 5'
d) Has a Poly A Tail
e) Is a Heterogeneous Molecule

69. 81. In DNA Replication*:*
a) The newly synthesized DNA strand is growing in direction 5'→3'
b) DNA synthesis by the leading strand is continuous
c) DNA Helicase facilitates processive unwinding of double strands d) Origin of replication is identified by double strand DNA binding protein
d) All of the above is correct

اللجنة العلمية للدفعة ٣٥ - C-37 HUMAN MEDICINE

1- Pigment stones caused by :

a) Excess cholesterol in bile

b) Excess bile salts in bile

c) Chronic hemolysis

d- Estrogenic influences

Note\the chronic hemolysis increases the amount of direct or conjugate bilirubin in bile

tha will acumelate and lead to pigment stone

2- One cause of duodenal ulcer is :

a) Increase the secretion of hormone that stimulate enough alkaline

b) Rapid emptying of gastric contents into the duodenum

c) Delay emptying of gastric contents into the duodenum

d) Gastric hypo secretion

Note\as the mucous lining of the duodenum is very delicate it will be ulcerated by the rapid

gastric emptying

3- NSAIDS effect on stomach and act by:

a) Stimulating cyclo-oxygenase enzyme activity

b) Increase the prostaglandins in the stomach and duodenum

اللجنة العلمية للقمة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c) Inhibiting somatostatin

d) Inhibiting cyclo-oxygenase enzyme activity

Note \the cyclooxygenease is the key enzymes in synthesis of the prostaglandins which are one of the mechanisms that protect the gastric mucosa from the digestion effect of excess secretion of pepsin and hcl through stimulation of bicarbonate secretion and inhibition of hcl secretion and increase the blood flow

4- Trypsinogen is activated to trypsin by the :

a) Removal of 5 A.As from the COOH-terminal

b) Removal of 6 A.As from the amino-terminal

c) Removal of 6 A.As from the COOH-terminal

d) Removal of 42 A.As from the amino-terminal

5- Abnormalities in digestion and absorption of proteins produce :

a) Chronic gastritis

b) Celiac disease

c) Steatorrhea

d) Lactase deficiency

Note\that the celiac disease is result from defect in the enzymes that responsible for

اللجنة العلمية لكلية الطب البشري
C-37 اللجنة العلمية
HUMAN MEDICINE

digestion of wheat protein called glutin into large poly peptides that rich in glutamine amino acid which decrease the absorption capacity of small intestine to other nutrients that result in manifestations of malabsorption as steatorhea

6- Gastrin that secreted from TG cells:

a) Has inactive fragment in the last 5 A.As from the amino terminal

b) Its secretion increases sympathetically (fear and depression)

c) Its secretion increases in response to glucagon and calcitonin

d) Its secretion increases by a chemical transmitter (GRP)

7- Colipase activates pancreatic lipase through :

a) Inhibition of bile salts

b) Activation of bile salts

c) Aggregation of bile salts

d) Binding to bile salts

8- Secretin hormone stimulates:

a) The duodenum to secrete enteropeptidase enzyme

b) Pancreatic secretion rich in enzymes

c) HCO3 secretion by bile ducts

اللجنة العلمية لدفعة ٢٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d) contraction of gall bladder

9- Which of the following receptors stimulate HCL secretion

a) Histamine, acetylcholine, and gastrin receptors

b) Histamine, CSK, and secretin receptors

c) Acetylcholine, gastrin and secretin receptors

d) CSK, gastrin, and histamine receptors

10- Pepsin is an endopeptidase, specific for peptide formed by:

a) Lysine, leucine, and tyrosine

b) Lysine, phenylalanine, tyrosine and serine

c) Serine, glycine, and proline

d) Glycine, lysine, and proline

Note\ that the pepsin enzyme acts on the peptide bonds that contain the carboxyl group of

the aromatic amino acids as tyrosine and phenylalanine as well as tryptophan

11-Gastric mucin:

a) Is a glycoprotein with LMW

b) Is secreted by chief cells

c) Develop of sickle cell anemia caused by its deficiency

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d) Acts as protection against development of gastric ulcer

12- Sympathetic effects on salivary glands:

a) Vasodilation

b) Secretion rich in mucus from submandibular gland

c) Watery secretion rich in ptyalin

d) Secretion of salivary lipase from lingual glands

13- Lipid esterase and phospholipase A2 activated by:

a) Colipase

b) Lipase

c) Bile salts

d) Cl , Br

14- HCL plays some role in regulation of gastric emptying through:

a) Entry of acidic chyme into the duodenum

b) Reflex inhibition of the entry of gastric secretion

c) A and B

d) None of the above

Note\ the entry of the acidic chyme into the duodenum stimulate the duodenal mucosa to

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

initiate the enterogastric reflex and secretion of the inhibitory hormones and both will

decrease the gastric emptying as well as gastric secretion

15- The Di and Tri peptides absorption are undergo cytoplasmic

hydrolysis except Di and Tri peptides containing:

a) Glutamate, aspartate, and taurine

b) Proline, tryptophan, and alanine

c) Proline, hydroxyproline, and alanine .

d) Aspartate, alanine, and taurine

16- The pepsinogen to be activated to pepsin removal of:

a) 33 A.As from the amino-terminal remove

b) 44 A.As from the amino-terminal remove

c) 42 A.As from the amino-terminal remove

d) 24 A.As from the amino-terminal remove

17- One action of CCK:

a) Stimulates gastric secretion

b) Stimulates the duodenum to secrete enterokinase

c) Inhibits the pancreatic secretion

اللجنة العلمية للفرقة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d) Stimulates the mucous secretion

Note , the enteropeptidase or the enterokinase is secreted by the intestinal mucosa under effect of CCK which is important for activation of trypsinogen into trypsin in the intestinal lumen

18- Pancreatic amylase hydrolyses starch, glycogen and dextrin to:

a) Lactose, maltotriose, and (1,4) oligosaccharides

b) Lactose, maltotriose, and (1,6) oligosaccharides

c) Maltose, maltotriose, and (1,4) oligosaccharides

d) Maltose, maltotriose, and (1,6) oligosaccharides

NOTE, the pancreatic amylase can exert its hydrolytic effect on the 1:4 glycosidic bond of the cooked starch and glycogen but not on the 1:6 bond

19- The main causes of duodenal ulcer is:

a) Increase production of somatostatin

b) Increase production of interleukin-1B

c) Decrease acid production

d) Local impairment of somatostatin production

NOTE, the Local impairment of somatostatin production allow the gastrin secreting cells to

be released from the inhibitory effect of the somatostatin and increase the amount of gastrin hormone secretion which increase the amount of hydrochloric acid secretion that enter the duodenum and ulcers its delicate mucosa

20- Gastrin is:

a) Inhibitory hormone

b) Four types are identified

c) G34 is the most abundant and common

d) Its secretion is decreased by fear and depression

21- Cyclo-oxygenase 1 constitutively expressed as :

a) Inflammatory enzyme

b) House-keeping enzyme

c) Expressed in some tissues as brain and ovary

d) Largely induced at site of inflammation

22- H.pylori secreted all of the following except:

a) Cytotoxin

b) Cycloxygenase

c) Lipase

اللجنة العلمية لدفعة ٣٥ بشري
اللجنة العلمية C-37
HUMAN MEDICINE

d) Mucolytic enzyme

23- All the following about celiac disease except:

a) Defect in enzyme required for digestion of peptide

b) One of causes of malabsorption syndrome

c) Abnormalities in carbohydrate absorption

d) Appears in early childhood

24-……..hormones that regulate GIT secretion:

a) Gastrin, serotonine, and CCK

B) Acetylcholine, gastrin, and secretin

c) CCK, gastrin, and secretin

d) Gastrin, histamine, and CCK

25- All the following about VIP except:

a) Present in endocrine cells

b) Vasodilator

c) Inhibits gastric secretion

d) Inhibits electrolytes and water secretion

26- Prostaglandin plays a major role in gastric protection as they stimulate:

اللجنة العلمية للدفعة ٣٥ بشري
C 37 اللجنة العلمية
HUMAN MEDICINE

a) HCL, mucus, HCO3 secretion and decrease blood flow

b) HCO3, mucus secretion and decrease blood flow

c) HCO3, mucus secretion and increase blood flow

d) None of the above

27- People with cystic fibrosis have a greatly diminished ability to secrete:

a) HCO3 into the pancreatic juice

b) HCL into the gastric juice

c) All of the above

d) None of the above

28- The lingual lipase:

A) Enzyme prefers the hydrolysis of large chain triglycerides

b) Is very important in adult

c) Is unusual enzyme that its PH 4

d) Is unusual enzyme that its PH 6

29- If the flow of salivary secretion increase so:

a) The level of Na,K,Cl increase whilst the level of HCO3

b) The level of Na,HCO3 ,Cl decrease whilst the level of K increase

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c) The level of Na,K,Cl decrease whilst the level of K constant

d) The level of Na, Cl,HCO3 increase whilst the level of K decrease

30- Steatorrhea can result from:

a) Obstruction of biliary truct due to gall stones

b) Spinal cord injury or pregnancy

c) Defective in digestion of protein

d) Defective in digestion of carbohydrate

NOTE, the reabsorption and digestion of the dietary lipids needs the bile salts which exert emulsification process and make micells with insoluble lipids but in case of biliary duct obstruction these salts is decreased so the lipids will be execreted in the stool

31- Regard Salivary alpha amylase:

a) Optimum PH 6

b) Hydrolysis starch to maltose by one step

c) Acts only on starch

d) Is activated by Cl and Br

32- Gastric mucin:

اللجنة العلمية للطب البشري
HUMAN MEDICINE

a) Is a glycoprotein with LMW

b) Acts as an extrinsic factor for absorption of vitamin B12

c) Is secreted by the columnar epithelial cells of the stomach

d) Protection of the gastric mucosa from being digest by the pepsin

33- Gastrin secretion decreased by:

a) Protein hydrolysis

b) By glucagon and calcitonin

c) Distension of the antrum

d) Anger, anxiety and hostility

34- CCK stimulates the secretion of:

a) Enteropeptidase

b) HCO3 by bile ducts

c) Pancreatic secretion rich in mucus

d) HCL secretion from stomach

35- The gall bladder bile is:

a)More concentrated due to H2O absorption

b) High PH due to reabsorption of electrolytes

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c) Low PH due to reabsorption of electrolytes

d) Low specific gravity

NOTE, the wall of gall bladder is preamble to Na and Cl so they will be reabsorbed and followed by water reabsorption so their concentration is decreased while that of bile salts is increased so the PH become low and this is necessary for the solubility of both cholestrol and Ca to prevent their accumulation in the form of stones

36- Histamine has the following characteristics except:

a) Bind to specific receptor on stomach

b) stimulate HCL secretion used adenylcyclase as a second messenger

c) Biogenic amine

d) Regulate GIT secretion

37- Secretin is:

a) A polypeptide of 17 A.As

b) A hormone secreted by I cells

c) Depends on its secondary structure for its activity

d) The 04 of it's A.As are identical and in the same position to glucagon

اللجنة العلمية للدفعة ٣٥ بشري
HUMAN MEDICINE

MCQs in cellular respiration

Choose the most correct answer

1- Cell respiration involve all of the following except

a- formation of acetyl CoA

b- Formation of NADPH+H

c- Oxidation of NADH+H

d- Oxidation of FADH2

e- Oxidation of acetyl CoA

Answer: b

2- The terminate electrons accepter in respiratory chain is

a- Cytochrome C

b- FAD

c- Molecular oxygen

d- Coenzyme Q

e- A and C

اللجنة العلمية لكلية الطب البشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: C

3- CO inhibits the transfer of electrons from

a- FADH2 to CoQ

b- Cyt. C to CoQ

c- Cyt. C to O2

d- NADH+H to CoQ

e- None of the above

Answer: C

4- CoQ accept electron from

a- NADH+H

b- NADPH+H

c- FADH2

d- A and C

e- All of the above

Answer: C

5- Transport of cytoplasmic NADH+H to matrix of mitochondria by:

a- Malate – asparate shuttle

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Carnitine shuttle

c- Albumin

d- Tricarboxylate transport system

e- None of the above

Answer: a

6- Which of the following energy coupling hypothesis can explain mechanism of substrate level phosphorylation in the cytosol:

a- Chemiosmotic energy coupling hypothesis

b- Chemical energy coupling hypothesis

c- Conformational energy coupling hypothesis

d- B and C

e- All of the above

Answer: B and C

7- ATP can be formed in the cytosol by:

a- Oxidation phosphorylation

b- Substrate level phosphorylation

c- Oxidation and substrate level phosphorylation

اللجنة العلمية للفرقة ٣٥ بشري
HUMAN MEDICINE

d- A and C

e- None of the above

Answer: B

8- Reduced from of COQ can be oxidation by the action of:

a- Cyt. Oxidase

b- NADH-COQ reductase

c- Succinate COQ reductase

d- Cyt C -COQ .reductase

e- None of the above

Answer: D

9- NADH COQ reductase catalyze the oxidation of:

a- NADPH+H

b- FADH2

c- NADH+H

d- Succinate

e- None of the above

Answer: C

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

10- The energy released when electrons transport from NADH+H to Cyt C is enough synthesis

a- 1 ATP

b- 2 ATP

c- 5 ATP

d- 3,46 ATP

e- 2,5 ATP

Answer: E

11- The inhibitor of electron transport from COQ to CYT.C is

a- Rotenone

b- Antimycine A

c- Amytal

d- CO

e- None of the above

Answer: B

12- Oxygen can be toxic when it accepts:

a- 4 electron and 4 proton

b- 2 electron and 2 proton

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- 1 electron

d- B and C

e- All of the

Answer: C

13- Cell can detoxify superoxide radical by:

a- Enolase

b- Superoxide dismutase and glutathione peroxidase

c- Glutathione peroxidase and superoxide dismutase

d- Reductase and hydratase

e- None of the above

Answer: B

14- Which of the following observation can be explained by chemo-osmotic energy coupling hypothesis:

a- Oxidative phosphorylation requires an intact inner mitochondrial membrane

b- Electron transport results in transport of protons out of inner mitochondrial thereby creating a measurable electrochemical gradient across the inner mitochondrial membrane

c- Oxidative phosphorylation does not require an intact inner mitochondrial membrane

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- A and B

Answer: D

15- molecular oxygen (O2)

a- is used for oxidative Phosphorylation

b- used for hydroxylation oxygenation reaction

c- used to produce free radical

d- all of the above

Answer: A

16- characteristic of free radical

a- long lived

b- unstable

c- inactive

d- B,C

Answer: B

17- Reactive species

a- Include free radicals and oxidant

b- Increase during chronic infection

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- Increase during sternous exercise

d- All of the above

Answer: D

18- Endogenous antioxidant

a- Uric acid

b- Vit.E

c- Lycopens

d- Carotenoids

Answer: A

19- Oxidation

a- Is gain of electron

b- Loss of hydrogen

c- Loss of oxygen

d- All of the above

Answer: B

20- Characteristic of free radicals

a- Short lived

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Stable

c- Inactive

d- B,C

Answer: A

21- Free radicals

a- Increase free radicals and antioxidants

b- Increase during chronic infection

c- Decrease during sternous exercise

d- All of the above

Answer: B

22- The following complexes act as a proton pump exxept:

a- Complex I

b- Complex II

c- Complex III

d- Complex IV

Answer: B

23- The rate of tissue respiration is raised when intracellular concentration of

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- ADP increases

b- ATP increases

c- ADP decrease

d- None of these

Answer: A

24- Oxidase

a- Catalyze the removal of hydrogen from substrates

b- Use oxygen as hydrogen acceptor

c- Produce water or hydrogen peroxide

d- All of these

Answer: D

25- Inhibitors for Complex III

a- Amytal

b- Cyanide

c- Antimycin

d- Carotenoids

Answer: C

اللجنة العلمية للدفعة ٣٥ بشري
HUMAN MEDICINE

26- Uncouplers

a- Compounds dissociate oxidation in respiratory chain from phosphorylation

b- 2,4 Dinitrophenol

c- A,B

Answer: C

27- Which of the following component of respiratory chain is not attached to the inner mitochondrial membrane

a- Coenzyme Q

b- Cytochrome C

c- A ,B

d- None of the above

Answer: C

28- Substrate level phosphorylation means

a- Formation of ATP in the respiratory chain

b- Formation of ATP from high energy compound

c- Formation of NADH+H from oxidation of food stuff

d- None of the above

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: A

29- The transfer of reducing equivalents through respiratory chain depends upon

a- The difference in their redox potential

b- Their content of iron in the form of ferrous

c- Their molecular weight

d- All of the above

30- When the (G) is negative that means

a- The reaction can proceed spontaneously

b- The reactant has more energy than the product

c- The reactant has less energy than the product

Answer: A

31- The group of oxidoreductase which cytochrome P450 is related

a- Oxygenase

b- Dehydrogenase

c- Oxidase

d- Hydroperoxidase

Answer: B

اللجنة العلمية للغة ٣٥ بشري
HUMAN MEDICINE

32- All of the following are antioxidants excepts

a- H_2O_2

b- Vitamin C

c- Vitamin E

d- Catalase enzyme

Answer: A

33- The protein complex is found in

a- Outer membrane

b- Inner membrane

c- Inter membrane spaces

d- Mitochondria

Answer: B

34- Substrate linked phosphorylation occur in

a- Glycolytic pathway

b- Urea cycle

c- Fatty acid synthesis

d- None of the above

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: D

35- Hydrogen peroxide may be detoxified

a- Glutathione reductase

b- Catalase

c- Superoxide dismutase

d- All of the above

Answer: D

36- The more positive the Eθ the greater the tendency of the oxidant member of that pair to

a- Loss electrons

b- Gain electrons

c- Loss and gain electrons

d- Loos or gain electrons

Answer: B

37- All of the following statements about ATP synthase are correct except

a- Is a large complex formed from two subunit F1 ,Fo

b- Catalyzes the formation of ATP

c- Is inhibited by cyanide

اللجنة العلمية للدفعة ٣٥ بيزي
C-37 اللجنة العلمية
HUMAN MEDICINE

d- Can exhibit ATPase activity

Answer : D

38- An increase in oxidative damage to DNA ,protein and lipid mat lead to disease such as

a- Atherosclerosis

b- Diabetes

c- Cancer

d- All of the above

Answer : D

39- An important lipid soluble vitamin act as antioxidant is

a- Vitamin C

b- Vitamin E

c- Vitamin B12

d- Vitamin K

Answer: B

40- Amytal barbiturate is used as sedative drug which may inhibit ATP production by

inhibiting

a- Complex I

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Complex II

c- Complex III

d- Complex IV

Answer: A

41- Reduction

a- Is gain in electron

b- Loss of hydrogen

c- Gain of oxygen

d- All of these

Answer: A

42- Exogenous antioxidants

a- Vitamin E

b- Ascorbic acid

c- Metal binding protein

d- A,B

Answer: D

43- Inhibitor for complex 4

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- Amytal

b- Cyanide

c- Antimycin

d- Corotenoids

Answer: B

44- Reactive oxygen species (ROS) include

a- Nitric oxide NO

b- Nitrogen dioxide NO2

c- Nitrogen acid HNO3

d- None of the above

Answer: A

45- Interaction of hydroxyl radical OH- with purine will generate

a- 8 hydroxy deoxy guanosine

b- Carbonyl C=O groups aldehydes, ketones

c- Malondialdehyde

d- Citrilline

46- When inhibitors bind to the respiratory chain

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- ATP synthesis stop

b- Proton pumping into the inter membrane space stop

c- The components after the side of block still oxidized

d- All of the above

Answer: D

47- Catalase enzyme is a member of

a- Monooxygenase

b- Dehydrogenase

c- Hydroperoxidase

d- Oxidase

Answer: C

48- The most powerful natural antioxidant is

a- Vitamin C

b- Caffeine

c- B-carotene

d- Vitamin E

Answer: D

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

49- H_2O_2 is considered as free radical due to

a- It is present in high concentration

b- It is highly reactive molecule

c- All of the above

d- It is toxic radical

Answer: C

50- The oxidation reduction system having the highest redox potential is

a- Ubiquinone ox/red

b- Fe^{3+} cytochrome a/Fe^{2+}

c- Fe^{3+} cytochrome b/Fe^{2+}

d- NAD+

/NADH

51- The compound having the lowest redox potential among the following is

a- Hydrogen

b- NAD

c- Cytochrome b

d- Cytochrome a

اللجنة العلمية للدفعة ٣٥ بشري
C 87 اللجنة العلمية
HUMAN MEDICINE

Answer: A

52- All of the following compounds are members of electron transport chain except:

a- Ubiquinone

b- Carnidine

c- NAD

d- FAD

Answer: B

53- The correct sequence of cytochrome carrier in respiratory chain is

a- Cyt b - cyt c- cyt c1 – cyt a3

b- Cyt a3 - cyt b- cyt c – cyt c1

c- Cyt b - cyt c1- cyt c – cyt a3

d- Cyt b - cyt a3- cyt c1 – cyt c

Answer: C

54- A compunant of the respiratory chain in mitochondria is

a- Coenzyme Q

b- Coenzyme A

c- Acetyl coenzyme

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- Coenzyme containing thiamin

Answer: A

55- The negative standard reduction potential of redox pair such as NAD/NADH has a greater tendency to

a- Lose electron

b- Gain electron

c- Lose or gain electron

d- Lose and gain electron

Answer: A

56- In the endergonic reaction process

a- This process occur spontaneously

b- This process need energy

c- This reaction is reversible

d- The free energy of product is more than reactant

Answer: D

57- When antimycin A inhibitor presents

a- Cyt C remain oxidized

اللجنة العلمية للفرقة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Complex I inhibited

c- Complex II inhibited

Answer: A

58- At sites of phosphorylation in the respiratory chain the minimum difference in the redox potentials of two consecutive component is

a- 0.2 mv

b- 0.2 v

c- 0.42 mv

d- 0.42 v

C-37 اللجنة العلمية
HUMAN MEDICINE
اللجنة العلمية لكلية ٣٥ بشري

59- When reducing equivalents enter the respiratory chain through NAD the P/O ratio is

a- 1:2

b- 2:1

c- 1:3

d- 3:1

Answer: D

60- Cyanide inhibits phosphorylation at

a- Site I

b- Site II

c- Site III

d- None of these

Answer: D

61- F0 component of vectorial ATP synthetase is inhibited by

a- Dinitrophenol

b- Rotenone

c- Cyanide

d- Oligomycin

Answer: D

62- Uncouplers of oxidative phosphorylation

a- Inhibit F0 component of vectorial ATP synthetase

b- Inhibit F1 component of vectorial ATP synthetase

c- Make the inner mitochondrial membrane permable to H+

d- Inactive cytochromes

Answer: C

63- Cytochrome oxidase is poisoned by all the following except

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- Co

b- Hydrogen sulphide

c- Oligomycin

d- Cyanide

Answer: C

64- The following reaction can be considered as oxidation

a- Fe3++electron →Fe2+

b- Cu2++electron →Cu+

c- Fe2+→Fe3++electron

d- None of the above

Answer: C

65- The number of ATP produced in the oxidation of 1 molecule of NADPH in oxidative

phosphorylation is

a- Zero

b- 2

c- 3

d- 4

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: A

66- Cytochrome oxidase contains:

a- Zn2+

b- Fe2+

c- Mn2+

d- Cu2+

Answer: D

67- Respiratory chain is inhibited by all of the following except

a- Increase NADH+H

b- Increase ATP

c- Increase Acetyl CoA

d- Increase TTP

Answer: A

68- All of these processes occur in mitochondria except

a- Citric acid cycle

b- Oxidative phosphorylation

c- Ketogenesis

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- Glycolysis

Answer: D

69- The function of cyt C in complex IV is

a- Transfer of electron to O2 to form H2O

b- Pump proton

c- Both a,b

d- None of these

Answer: C

70- The electrochemical gradient across the inner mitochondrial membrane caused by

a- The inner mitochondrial membrane become permeable to proton

b- The outer mitochondrial membrane become permeable to proton

c- Proton pump across the inner membrane

Answer: C

71- The coenzyme Q is transferred to ubiquinol by

a- Adding one electron and one proton

b- Adding 2 electrons and 2 protons

c- Adding 2 protons

اللجنة العلمية للطب البشري
HUMAN MEDICINE

d- Adding 2 electrons

Answer: D

72- Which of the following is endogenous source of free radicals

a- Electron transport chain

b- Oxidant enzymes

c- Bacterial infection

d- All of the above

Answer: D

73- A mobile carrier molecule in respiratory chain is

a- CoQ

b- Cyt a

c- Cyt b

d- Cyt a3

Answer: A

74- oxidation reduction potential

a- depend on the number of electrolytes in the reaction

b- it is the affinity of a substrate to accept electrons

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- both a,b

d- none of these

Answer: B

75- ATP is important for all of these except

a- Muscle contraction

b- Synthesis of macromolecules

c- Support the exergonic reaction

d- Active transport across membranes

Answer: C

76- The free energy change (ΔG0

) depends on

a- The nature and concentration of initial reactants only

b- The nature and concentration final products only

c- The nature and concentration of the initial reactants and final products

d- None of the above

Answer: C

77- The outer mitochondrial membrane

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- Contain the electron transport chain

b- Is deeply invaginated to produce a large surface area

c- Contains acyl CoA synthetase

d- Contains the tricarboxylic acid cycle enzymes

Answer: C

78- The relative concentration of ATP and ADP control the cellular rate of

a- Glycolysis

b- Oxidative phosphorylation

c- Citric acid cycle

d- All of the above

Answer: D

79- The first step of oxidation and NADH+H

a- 4 electrons transfer to CoQ

b- 2electrons and 2 protons transfer to FMN

c- 2 electrons only transfer to FMN

d- 4 protons transfer to Cyt C

Answer: B

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

80- Oxidizing or reducing agents may exist as

a- Oxidant form only

b- Reduced form

c- Conjugate pair of oxidant and reductant form

d- None of the above

Answer: C

81- Enzymes catalyzes transfer and incorporated of oxygen into substrate are

a- Oxidase

b- Oxygenase

c- Catalase

d- Peroxidase

Answer: B

82- In the respiratory chain the relatively most electropositive molecule is

a- NADH+H+

b- FMN

c- Cyt b

d- O2

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: D

83- Which of the following statement about energy conservation in mitochondria is false

a- Drugs which inhibit ATP synthase will also inhibit flow of electrons

b- The yield of ATP per mole of oxidizable structure depends on the substrate

c- Uncouplers have exactly the same effect on electron transfer as inhibitors

d- None of the above

Answer: D

84- Oligomycin

a- Bind to the F0 of the ATP synthase

b- Prevent thrombosis

c- Is uncoupler

d- Both A,C

Answer: D

85- Almost all of oxygen one consumes in breathing is converted to

a- Acetyl CoA

b- Carbon dioxide

c- Carbon monoxide then dioxide

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- None of the above

Answer: D (water)

86- In normal mitochondria the rate of NADH oxidation will

a- Be increased in active muscle and decrease in inactive muscle

b- Be very low if ATP is inhibited

c- Decrease if mitochondrial ADP is depleted

d- All of the above

Answer: D

87- During oxidative phosphorylation the proton motive force that is generated by electron transport is used to

a- Create a pore in the inner mitochondrial membrane

b- Induce a conformational change in the ATP synthase

c- Oxidize NADH to NAD

d- Reduce O2 to H2O

Answer: B

88- The following reaction

O

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

-

2 + O-

2 + 2H+ → H2O2 + O2 is catalyzed by

a- Superoxide dismutase

b- Glutathione peroxidase

c- Catalase

d- Glutathione reductase

Answer: A

89- In some reactions the energy captured in the form of

a- UTP

b- CTP

c- GTP

d- All of the above

Answer: D

90- Cytosolic glutathione peroxidase contains

a- Selenium

b- Manganese

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- magnesium

d- cooper

Answer: A

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

GIT

1- Pigment stones caused by :

a) Excess cholesterol in bile

b) Excess bile salts in bile

c) Chronic hemolysis

d- Estrogenic influences
Answer: c
Note\the chronic hemolysis increases the amount of direct or conjugate bilirubin in bile

tha will acumelate and lead to pigment stone

2- One cause of duodenal ulcer is :

a) Increase the secretion of hormone that stimulate enough alkaline

b) Rapid emptying of gastric contents into the duodenum

c) Delay emptying of gastric contents into the duodenum

d) Gastric hypo secretion
Answer: b
Note\as the mucous lining of the duodenum is very delicate it will be ulcerated by the rapid

gastric emptying

3- NSAIDS effect on stomach and act by:

a) Stimulating cyclo-oxygenase enzyme activity

b) Increase the prostaglandins in the stomach and duodenum

c) Inhibiting somatostatin

d) Inhibiting cyclo-oxygenase enzyme activity
Answer:d

Note \the cyclooxygenease is the key enzymes in synthesis of the prostaglandins which are

one of the mechanisms that protect the gastric mucosa from the digestion effect of excess

secretion of pepsin and hcl through stimulation of bicarbonate secretion and inhibition of

hcl secretion and increase the blood flow

4- Trypsinogen is activated to trypsin by the :

a) Removal of 5 A.As from the COOH-terminal

b) Removal of 6 A.As from the amino-terminal

c) Removal of 6 A.As from the COOH-terminal

d) Removal of 42 A.As from the amino-terminal
Answer:b

5- Abnormalities in digestion and absorption of proteins produce :

a) Chronic gastritis

b) Celiac disease

c) Steatorrhea

d) Lactase deficiency
Answer: b
Note\that the celiac disease is result from defect in the enzymes that responsible for

digestion of wheat protein called glutin into large poly peptides that rich in glutamine

amino acid which decrease the absorption capacity of small intestine to other nutrients that

result in manifestations of malabsorption as steatorhea

6- Gastrin that secreted from TG cells:

a) Has inactive fragment in the last 5 A.As from the amino terminal

b) Its secretion increases sympathetically (fear and depression)

c) Its secretion increases in response to glucagon and calcitonin

d) Its secretion increases by a chemical transmitter (GRP)
Answer: d

7- Colipase activates pancreatic lipase through :

a) Inhibition of bile salts

b) Activation of bile salts

c) Aggregation of bile salts

d) Binding to bile salts
Answer: a

8- Secretin hormone stimulates:

a) The duodenum to secrete enteropeptidase enzyme

b) Pancreatic secretion rich in enzymes

c) HCO3 secretion by bile ducts

d) contraction of gall bladder
Answer: c

9- Which of the following receptors stimulate HCL secretion

a) Histamine, acetylcholine, and gastrin receptors

b) Histamine, CSK, and secretin receptors

c) Acetylcholine, gastrin and secretin receptors

d) CSK, gastrin, and histamine receptors
Answer: a

10- Pepsin is an endopeptidase, specific for peptide formed by:

a) Lysine, leucine, and tyrosine

b) Lysine, phenylalanine, tyrosine and serine

c) Serine, glycine, and proline

d) Glycine, lysine, and proline
Answer: b
Note\ that the pepsin enzyme acts on the peptide bonds that contain the carboxyl group of

the aromatic amino acids as tyrosine and phenylalanine as well as tryptophan

11-Gastric mucin:

a) Is a glycoprotein with LMW

b) Is secreted by chief cells

c) Develop of sickle cell anemia caused by its deficiency

d) Acts as protection against development of gastric ulcer
Answer:d

12- Sympathetic effects on salivary glands:

a) Vasodilation

b) Secretion rich in mucus from submandibular gland

c) Watery secretion rich in ptyalin

d) Secretion of salivary lipase from lingual glands
Answer: b

اللجنة العلمية للفرقة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

13- Lipid esterase and phospholipase A2 activated by:

a) Colipase

b) Lipase

c) Bile salts

d) Cl , Br
Answer: c

14- HCL plays some role in regulation of gastric emptying through:

a) Entry of acidic chyme into the duodenum

b) Reflex inhibition of the entry of gastric secretion

c) A and B

d) None of the above
Answer: c
Note\ the entry of the acidic chyme into the duodenum stimulate the duodenal mucosa to

initiate the enterogastric reflex and secretion of the inhibitory hormones and both will

decrease the gastric emptying as well as gastric secretion

15- The Di and Tri peptides absorption are undergo cytoplasmic

hydrolysis except Di and Tri peptides containing:

a) Glutamate, aspartate, and taurine

b) Proline, tryptophan, and alanine

c) Proline, hydroxyproline, and alanine .

d) Aspartate, alanine, and taurine
Answer: c

16- The pepsinogen to be activated to pepsin removal of:

a) 33 A.As from the amino-terminal remove

b) 44 A.As from the amino-terminal remove

c) 42 A.As from the amino-terminal remove

d) 24 A.As from the amino-terminal remove
Answer: c

17- One action of CCK:

a) Stimulates gastric secretion

b) Stimulates the duodenum to secrete enterokinase

c) Inhibits the pancreatic secretion

d) Stimulates the mucous secretion
Answer: b
Note , the enteropeptidase or the enterokinase is secreted by the intestinal mucosa under

effect of CCK which is important for activation of trypsinogen into trypsin in the intestinal

lumen

18- Pancreatic amylase hydrolyses starch, glycogen and dextrin to:

a) Lactose, maltotriose, and (1,4) oligosaccharides

b) Lactose, maltotriose, and (1,6) oligosaccharides

c) Maltose, maltotriose, and (1,4) oligosaccharides

d) Maltose, maltotriose, and (1,6) oligosaccharides
Answer: d
NOTE, the pancreatic amylase can exert its hydrolytic effect on the 1:4 glycosidic bond of

the cooked starch and glycogen but not on the 1:6 bond

19- The main causes of duodenal ulcer is:

a) Increase production of somatostatin

b) Increase production of interleukin-1B

c) Decrease acid production

d) Local impairment of somatostatin production
Answer: d
NOTE, the Local impairment of somatostatin production allow the gastrin secreting cells to

be released from the inhibitory effect of the somatostatin and increase the amount of

gastrin hormone secretion which increase the amount of hydrochloric acid secretion that

enter the duodenum and ulcers its delicate mucosa

20- Gastrin is:

a) Inhibitory hormone

b) Four types are identified

c) G34 is the most abundant and common

d) Its secretion is decreased by fear and depression
Answer: d

21- Cyclo-oxygenase 1 constitutively expressed as :

a) Inflammatory enzyme

b) House-keeping enzyme

c) Expressed in some tissues as brain and ovary

d) Largely induced at site of inflammation
Answer: b

22- H.pylori secreted all of the following except:

a) Cytotoxin

b) Cycloxygenase

c) Lipase

d) Mucolytic enzyme
Answer: b

23- All the following about celiac disease except:

a) Defect in enzyme required for digestion of peptide

b) One of causes of malabsorption syndrome

c) Abnormalities in carbohydrate absorption

d) Appears in early childhood
Answer: c

24-…….hormones that regulate GIT secretion:

a) Gastrin, serotonine, and CCK

B) Acetylcholine, gastrin, and secretin

c) CCK, gastrin, and secretin

d) Gastrin, histamine, and CCK
Answer: c

25- All the following about VIP except:

a) Present in endocrine cells

b) Vasodilator

c) Inhibits gastric secretion

اللجنة العلمية للفرقة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d) Inhibits electrolytes and water secretion
Answer: d

26- Prostaglandin plays a major role in gastric protection as they stimulate:

a) HCL, mucus, HCO3 secretion and decrease blood flow

b) HCO3, mucus secretion and decrease blood flow

c) HCO3, mucus secretion and increase blood flow

d) None of the above
Answer: c

27- People with cystic fibrosis have a greatly diminished ability to secrete:

a) HCO3 into the pancreatic juice

b) HCL into the gastric juice

c) All of the above

d) None of the above
Answer: b

28- The lingual lipase:

A) Enzyme prefers the hydrolysis of large chain triglycerides

b) Is very important in adult

c) Is unusual enzyme that its PH 4

d) Is unusual enzyme that its PH 6
Answer: c

29- If the flow of salivary secretion increase so:

a) The level of Na,K,Cl increase whilst the level of HCO3

b) The level of Na,HCO3 ,Cl decrease whilst the level of K increase

c) The level of Na,K,Cl decrease whilst the level of K constant

d) The level of Na, Cl,HCO3 increase whilst the level of K decrease
Answer: d

30- Steatorrhea can result from:

a) Obstruction of biliary truct due to gall stones

b) Spinal cord injury or pregnancy

c) Defective in digestion of protein

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d) Defective in digestion of carbohydrate
Answer: a
NOTE, the reabsorption and digestion of the dietary lipids needs the bile salts which exert

emulsification process and make micells with insoluble lipids but in case of biliary duct

obstruction these salts is decreased so the lipids will be execreted in the stool

31- Regard Salivary alpha amylase:

a) Optimum PH 6

b) Hydrolysis starch to maltose by one step

c) Acts only on starch

d) Is activated by Cl and Br
Answer: d

32- Gastric mucin:

a) Is a glycoprotein with LMW

b) Acts as an extrinsic factor for absorption of vitamin B12

c) Is secreted by the columnar epithelial cells of the stomach

d) Protection of the gastric mucosa from being digest by the pepsin
Answer: d

33- Gastrin secretion decreased by:

a) Protein hydrolysis

b) By glucagon and calcitonin

c) Distension of the antrum

d) Anger, anxiety and hostility
Answer: d

34- CCK stimulates the secretion of:

a) Enteropeptidase

b) HCO3 by bile ducts

c) Pancreatic secretion rich in mucus

d) HCL secretion from stomach
Answer: a

35- The gall bladder bile is:

اللجنة العلمية لدفعة ٢٥ بشري
C-37
HUMAN MEDICINE

a)More concentrated due to H2O absorption

b) High PH due to reabsorption of electrolytes

c) Low PH due to reabsorption of electrolytes

d) Low specific gravity
Answer: a and c
NOTE, the wall of gall bladder is preamble to Na and Cl so they will be reabsorbed and

followed by water reabsorption so their concentration is decreased while that of bile salts is

increased so the PH become low and this is necessary for the solubility of both cholestrol

and Ca to prevent their accumulation in the form of stones

36- Histamine has the following characteristics except:

a) Bind to specific receptor on stomach
b) stimulate HCL secretion used adenylcyclase as a second messenger

c) Biogenic amine

d) Regulate GIT secretion
Answer: d

37- Secretin is:

a) A polypeptide of 17 A.As

b) A hormone secreted by I cells

c) Depends on its secondary structure for its activity

d) The 04 of it's A.As are identical and in the same position to glucagon
Answer: d

MCQs in cellular respiration

Choose the most correct answer

1- Cell respiration involve all of the following except

a- formation of acetyl CoA

b- Formation of NADPH+H

c- Oxidation of NADH+H

اللجنة العلمية لكلية الطب البشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- Oxidation of FADH2

e- Oxidation of acetyl CoA

Answer: b

2- The terminate electrons accepter in respiratory chain is

a- Cytochrome C

b- FAD

c- Molecular oxygen

d- Coenzyme Q

e- A and C

Answer: C

3- CO inhibits the transfer of electrons from

a- FADH2 to CoQ

b- Cyt. C to CoQ

c- Cyt. C to O2

d- NADH+H to CoQ

e- None of the above

Answer: C

4- CoQ accept electron from

a- NADH+H

b- NADPH+H

c- FADH2

d- A and C

e- All of the above

Answer: C

5- Transport of cytoplasmic NADH+H to matrix of mitochondria by:

a- Malate – asparate shuttle

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Carnitine shuttle

c- Albumin

d- Tricarboxylate transport system

e- None of the above

Answer: a

6- Which of the following energy coupling hypothesis can explain mechanism of substrate level phosphorylation in the cytosol:

a- Chemiosmotic energy coupling hypothesis

b- Chemical energy coupling hypothesis

c- Conformational energy coupling hypothesis

d- B and C

e- All of the above

Answer: B and C

7- ATP can be formed in the cytosol by:

a- Oxidation phosphorylation

b- Substrate level phosphorylation

c- Oxidation and substrate level phosphorylation

d- A and C

e- None of the above

Answer: B

8- Reduced from of COQ can be oxidation by the action of:

a- Cyt. Oxidase

b- NADH-COQ reductase

c- Succinate COQ reductase

d- Cyt C -COQ .reductase

e- None of the above

Answer: D

اللجنة العلمية لكلية الطب البشري C-37 HUMAN MEDICINE

9- NADH COQ reductase catalyze the oxidation of:

a- NADPH+H

b- FADH2

c- NADH+H

d- Succinate

e- None of the above

Answer: C

10- The energy released when electrons transport from NADH+H to Cyt C is enough synthesis

a- 1 ATP

b- 2 ATP

c- 5 ATP

d- 3,46 ATP

e- 2,5 ATP

Answer: E

11- The inhibitor of electron transport from COQ to CYT.C is

a- Rotenone
b- Antimycine A

c- Amytal

d- CO

e- None of the above

Answer: B

12- Oxygen can be toxic when it accepts:

a- 4 electron and 4 proton

b- 2 electron and 2 proton

c- 1 electron

d- B and C

e- All of the

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: C

13- Cell can detoxify superoxide radical by:

a- Enolase

b- Superoxide dismutase and glutathione peroxidase

c- Glutathione peroxidase and superoxide dismutase

d- Reductase and hydratase

e- None of the above

Answer: B

14- Which of the following observation can be explained by chemo-osmotic energy coupling hypothesis:

a- Oxidative phosphorylation requires an intact inner mitochondrial membrane

b- Electron transport results in transport of protons out of inner mitochondrial thereby creating a measurable electrochemical gradient across the inner mitochondrial membrane

c- Oxidative phosphorylation does not require an intact inner mitochondrial membrane

d- A and B

Answer: D

15- molecular oxygen (O2)

a- is used for oxidative Phosphorylation

b- used for hydroxylation oxygenation reaction

c- used to produce free radical

d- all of the above

Answer: A

16- characteristic of free radical

a- long lived

b- unstable

c- inactive

d- B,C

Answer: B

17- Reactive species

a- Include free radicals and oxidant

b- Increase during chronic infection

c- Increase during sternous exercise

d- All of the above

Answer: D

18- Endogenous antioxidant

a- Uric acid

b- Vit.E

c- Lycopens

d- Carotenoids

Answer: A

19- Oxidation

a- Is gain of electron

b- Loss of hydrogen

c- Loss of oxygen

d- All of the above

Answer: B

20- Characteristic of free radicals

a- Short lived

b- Stable

c- Inactive

d- B,C

Answer: A

21- Free radicals

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- Increase free radicals and antioxidants

b- Increase during chronic infection

c- Decrease during sternous exercise

d- All of the above

Answer: B

22- The following complexes act as a proton pump exxept:

a- Complex I

b- Complex II

c- Complex III

d- Complex IV

Answer: B

23- The rate of tissue respiration is raised when intracellular concentration of

a- ADP increases

b- ATP increases

c- ADP decrease

d- None of these

Answer: A

24- Oxidase

a- Catalyze the removal of hydrogen from substrates

b- Use oxygen as hydrogen acceptor

c- Produce water or hydrogen peroxide

d- All of these

Answer: D

25- Inhibitors for Complex III

a- Amytal

b- Cyanide

c- Antimycin

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- Carotenoids

Answer: C

26- Uncouplers

a- Compounds dissociate oxidation in respiratory chain from phosphorylation

b- 2,4 Dinitrophenol

c- A,B

Answer: C

27- Which of the following component of respiratory chain is not attached to the inner mitochondrial membrane

a- Coenzyme Q

b- Cytochrome C

c- A ,B

d- None of the above

Answer: C

28- Substrate level phosphorylation means

a- Formation of ATP in the respiratory chain

b- Formation of ATP from high energy compound

c- Formation of NADH+H from oxidation of food stuff

d- None of the above

Answer: A

29- The transfer of reducing equivalents through respiratory chain depends upon

a- The difference in their redox potential

b- Their content of iron in the form of ferrous

c- Their molecular weight

d- All of the above

30- When the (G) is negative that means
a- The reaction can proceed spontaneously

اللجنة العلمية لكلية الطب بنزي
C-37 اللجنة العلمية
HUMAN MEDICINE

b- The reactant has more energy than the product

c- The reactant has less energy than the product

Answer: A

31- The group of oxidoreductase which cytochrome P450 is related

a- Oxygenase

b- Dehydrogenase

c- Oxidase

d- Hydroperoxidase

Answer: B

32- All of the following are antioxidants excepts

a- H2O2

b- Vitamin C

c- Vitamin E

d- Catalase enzyme

Answer: A

33- The protein complex is found in

a- Outer membrane

b- Inner membrane

c- Inter membrane spaces

d- Mitochondria

Answer: B

34- Substrate linked phosphorylation occur in

a- Glycolytic pathway

b- Urea cycle

c- Fatty acid synthesis

d- None of the above

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: D

35- Hydrogen peroxide may be detoxified

a- Glutathione reductase

b- Catalase

c- Superoxide dismutase

d- All of the above

Answer: D

36- The more positive the Eθ the greater the tendency of the oxidant member of that pair to

a- Loss electrons

b- Gain electrons

c- Loss and gain electrons

d- Loos or gain electrons
Answer: B

37- All of the following statements about ATP synthase are correct except

a- Is a large complex formed from two subunit F1 ,Fo

b- Catalyzes the formation of ATP

c- Is inhibited by cyanide

d- Can exhibit ATPase activity

Answer : D

38- An increase in oxidative damage to DNA ,protein and lipid mat lead to disease such as

a- Atherosclerosis

b- Diabetes

c- Cancer

d- All of the above

Answer : D

39- An important lipid soluble vitamin act as antioxidant is

a- Vitamin C

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

b- Vitamin E

c- Vitamin B12

d- Vitamin K

Answer: B

40- Amytal barbiturate is used as sedative drug which may inhibit ATP production by inhibiting

a- Complex I

b- Complex II

c- Complex III

d- Complex IV

Answer: A

41- Reduction

a- Is gain in electron

b- Loss of hydrogen

c- Gain of oxygen

d- All of these

Answer: A

42- Exogenous antioxidants

a- Vitamin E

b- Ascorbic acid

c- Metal binding protein

d- A,B

Answer: D

43- Inhibitor for complex 4

a- Amytal

b- Cyanide

اللجنة العلمية للدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- Antimycin

d- Corotenoids

Answer: B

44- Reactive oxygen species (ROS) include

a- Nitric oxide NO

b- Nitrogen dioxide NO2

c- Nitrogen acid HNO3

d- None of the above

Answer: A

45- Interaction of hydroxyl radical OH- with purine will generate

a- 8 hydroxy deoxy guanosine

b- Carbonyl C=O groups aldehydes, ketones

c- Malondialdehyde

d- Citrilline

46- When inhibitors bind to the respiratory chain

a- ATP synthesis stop

b- Proton pumping into the inter membrane space stop

c- The components after the side of block still oxidized

d- All of the above

Answer: D

47- Catalase enzyme is a member of

a- Monooxygenase

b- Dehydrogenase

c- Hydroperoxidase

d- Oxidase

Answer: C

اللجنة العلمية لدفعة C-37 HUMAN MEDICINE

48- The most powerful natural antioxidant is

a- Vitamin C

b- Caffeine

c- B-carotene

d- Vitamin E

Answer: D

49- H2O2 is considered as free radical due to

a- It is present in high concentration

b- It is highly reactive molecule

c- All of the above

d- It is toxic radical
Answer: C

50- The oxidation reduction system having the highest redox potential is

a- Ubiquinone ox/red

b- Fe3+ cytochrome a/Fe2+

c- Fe3+ cytochrome b/Fe2+

d- NAD+

/NADH

51- The compound having the lowest redox potential among the following is

a- Hydrogen

b- NAD

c- Cytochrome b

d- Cytochrome a

Answer: A

52- All of the following compounds are members of electron transport chain except:

a- Ubiquinone

b- Carnidine

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

c- NAD

d- FAD

Answer: B

53- The correct sequence of cytochrome carrier in respiratory chain is

a- Cyt b - cyt c- cyt c1 – cyt a3

b- Cyt a3 - cyt b- cyt c – cyt c1

c- Cyt b - cyt c1- cyt c – cyt a3

d- Cyt b - cyt a3- cyt c1 – cyt c

Answer: C

54- A compunant of the respiratory chain in mitochondria is

a- Coenzyme Q

b- Coenzyme A

c- Acetyl coenzyme

d- Coenzyme containing thiamin

Answer: A

55- The negative standard reduction potential of redox pair such as NAD/NADH has a greater tendency to

a- Lose electron

b- Gain electron

c- Lose or gain electron

d- Lose and gain electron

Answer: A

56- In the endergonic reaction process

a- This process occur spontaneously

b- This process need energy

c- This reaction is reversible

d- The free energy of product is more than reactant

اللجنة العلمية للفرقة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

Answer: D

57- When antimycin A inhibitor presents

a- Cyt C remain oxidized

b- Complex I inhibited

c- Complex II inhibited

Answer: A

58- At sites of phosphorylation in the respiratory chain the minimum difference in the redox potentials of two consecutive component is

a- 0.2 mv

b- 0.2 v

c- 0.42 mv

d- 0.42 v

59- When reducing equivalents enter the respiratory chain through NAD the P/O ratio is

a- 1:2

b- 2:1

c- 1:3

d- 3:1

Answer: D

60- Cyanide inhibits phosphorylation at

a- Site I

b- Site II

c- Site III

d- None of these

Answer: D

61- F0 component of vectorial ATP synthetase is inhibited by

a- Dinitrophenol

اللجنة العلمية لدفعة ٣٥ بشري
HUMAN MEDICINE

b- Rotenone

c- Cyanide

d- Oligomycin

Answer: D

62- Uncouplers of oxidative phosphorylation

a- Inhibit F0 component of vectorial ATP synthetase

b- Inhibit F1 component of vectorial ATP synthetase

c- Make the inner mitochondrial membrane permable to H+

d- Inactive cytochromes

Answer: C

63- Cytochrome oxidase is poisoned by all the following except

a- Co

b- Hydrogen sulphide

c- Oligomycin

d- Cyanide

Answer: C

64- The following reaction can be considered as oxidation

a- Fe3++electron →Fe2+

b- Cu2++electron →Cu+

c- Fe2+→Fe3++electron

d- None of the above

Answer: C

65- The number of ATP produced in the oxidation of 1 molecule of NADPH in oxidative phosphorylation is

a- Zero

b- 2

c- 3

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

d- 4

Answer: A

66- Cytochrome oxidase contains:

a- Zn2+

b- Fe2+

c- Mn2+

d- Cu2+

Answer: D

67- Respiratory chain is inhibited by all of the following except

a- Increase NADH+H

b- Increase ATP

c- Increase Acetyl CoA

d- Increase TTP

Answer: A

68- All of these processes occur in mitochondria except

a- Citric acid cycle

b- Oxidative phosphorylation

c- Ketogenesis

d- Glycolysis

Answer: D

69- The function of cyt C in complex IV is

a- Transfer of electron to O2 to form H2O
b- Pump proton

c- Both a,b

d- None of these

Answer: C

70- The electrochemical gradient across the inner mitochondrial membrane caused by

اللجنة العلمية لدفعة ٣٥ بشري
C-37 اللجنة العلمية
HUMAN MEDICINE

a- The inner mitochondrial membrane become permeable to proton

b- The outer mitochondrial membrane become permeable to proton

c- Proton pump across the inner membrane

Answer: C

71- The coenzyme Q is transferred to ubiquinol by

a- Adding one electron and one proton

b- Adding 2 electrons and 2 protons

c- Adding 2 protons

d- Adding 2 electrons

Answer: D

72- Which of the following is endogenous source of free radicals

a- Electron transport chain

b- Oxidant enzymes

c- Bacterial infection

d- All of the above

Answer: D

73- A mobile carrier molecule in respiratory chain is

a- CoQ

b- Cyt a

c- Cyt b

d- Cyt a3

Answer: A

74- oxidation reduction potential

a- depend on the number of electrolytes in the reaction

b- it is the affinity of a substrate to accept electrons

c- both a,b

اللجنة العلمية للفرقة C-37 HUMAN MEDICINE

d- none of these

Answer: B

75- ATP is important for all of these except

a- Muscle contraction

b- Synthesis of macromolecules

c- Support the exergonic reaction

d- Active transport across membranes

Answer: C

76- The free energy change (ΔG0

) depends on

a- The nature and concentration of initial reactants only

b- The nature and concentration final products only

c- The nature and concentration of the initial reactants and final products

d- None of the above

Answer: C

77- The outer mitochondrial membrane

a- Contain the electron transport chain

b- Is deeply invaginated to produce a large surface area

c- Contains acyl CoA synthetase

d- Contains the tricarboxylic acid cycle enzymes

Answer: C

78- The relative concentration of ATP and ADP control the cellular rate of

a- Glycolysis

b- Oxidative phosphorylation

c- Citric acid cycle

d- All of the above

Answer: D

اللجنة العلمية لكلية الطب البشري
C-37
HUMAN MEDICINE

79- The first step of oxidation and NADH+H

a- 4 electrons transfer to CoQ

b- 2electrons and 2 protons transfer to FMN

c- 2 electrons only transfer to FMN

d- 4 protons transfer to Cyt C

Answer: B

80- Oxidizing or reducing agents may exist as

a- Oxidant form only

b- Reduced form

c- Conjugate pair of oxidant and reductant form

d- None of the above

Answer: C

81- Enzymes catalyzes transfer and incorporated of oxygen into substrate are

a- Oxidase

b- Oxygenase

c- Catalase

d- Peroxidase

Answer: B

82- In the respiratory chain the relatively most electropositive molecule is

a- NADH+H+

b- FMN

c- Cyt b

d- O2
Answer: D

83- Which of the following statement about energy conservation in mitochondria is false

a- Drugs which inhibit ATP synthase will also inhibit flow of electrons

b- The yield of ATP per mole of oxidizable structure depends on the substrate

اللجنة العلمية لدفعة ٣٥ بشري
HUMAN MEDICINE

c- Uncouplers have exactly the same effect on electron transfer as inhibitors

d- None of the above

Answer: D

84- Oligomycin

a- Bind to the F0 of the ATP synthase

b- Prevent thrombosis

c- Is uncoupler

d- Both A,C

Answer: D

85- Almost all of oxygen one consumes in breathing is converted to

a- Acetyl CoA

b- Carbon dioxide

c- Carbon monoxide then dioxide

d- None of the above

Answer: D (water)

86- In normal mitochondria the rate of NADH oxidation will

a- Be increased in active muscle and decrease in inactive muscle

b- Be very low if ATP is inhibited

c- Decrease if mitochondrial ADP is depleted

d- All of the above

Answer: D

87- During oxidative phosphorylation the proton motive force that is generated by electron transport is used to

a- Create a pore in the inner mitochondrial membrane

b- Induce a conformational change in the ATP synthase

c- Oxidize NADH to NAD

اللجنة العلمية للفرقة ٣ بشري
C 37 اللجنة العلمية
HUMAN MEDICINE

d- Reduce O2 to H2O

Answer: B

88- The following reaction

O

-

2 + O-

2 + 2H+ → H2O2 + O2 is catalyzed by

a- Superoxide dismutase

b- Glutathione peroxidase

c- Catalase

d- Glutathione reductase

Answer: A

89- In some reactions the energy captured in the form of

a- UTP

b- CTP

c- GTP

d- All of the above

Answer: D

90- Cytosolic glutathione peroxidase contains

a- Selenium

b- Manganese

c- magnesium

d- cooper

Answer: A

اللجنة العلمية لدفعة ٣٥ بشري
HUMAN MEDICINE

Molecular

*choose the correct answer:

1)_ Mutation can be defined as :

A. Permanente change in RNA

B. permanent change in DNA

C. Permanent change in protein synthesis

D. None of the above

2)_ The activation of amino acid required :

A. Aminoacyl mRNA transfer

B- Aminoacyl rRNA transfer

C- None of the above

3)_ The second step of protein synthesis is :

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

A. Initiation

B. Elongation

C. Termination

D. Activation

4)_ The elongation step of protein synthesis is include :

A. Binding of aminacyl-tRNA to the A site

B. Termination

C. Peptide bond formation

D. None of the above

5)_ All of the following about tautomerism <u>except :</u>

A. Purines and pyrimidines are present in different isomeric form

B. Amino-imino isomerase for amine

C. Tautomerism may result incorrect base perning during replication

6)_ Which of the following occur during the formation of complete:

A. IF2 combines with GTP to form primary complex

B. IF4 bind to 5-cap

C. IF1 AND IF3 bind to the 40s subunit

D. none of the above

7)_ For protein synthesis:

اللجنة العلمية للدفعة 35 طب بشرية
Scientific committee of the batch 35 human medicine

A. Initial activation of amino acid is required

B. Activation involve esterification of amino acid with tRNA

C. In cytosol the 20 amino acid esterfied by 20 different amino-acyl-tRNA synthesis

D. All of the above

8)_ the degeneracy of genetic codon :

A. is the existing of more than one cod word for an amino acid

B. an amino acid may be indicated or coded by one codon only

C. is the existing of one cod word for an amino acid

D. none of the above

9)_all of the following for characterization of genetic cod <u>except:</u>

A. each amino acid is coded by specific sequences

B. the initiation codon AUG

C. UAA , UAG , UGA is cold non sense codons

D. usually more than one reading frame will produce a functional protein

10)_ missense mutation leads to :

A. changed codon which lead to change in product

B. conversion of an amino acid codon to stop codon

C. translation of the mRNA is permanent

D. substituation of one amino acid by another amino acid

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

11)_ The pseudogene are defined as :

a. expressed .

b. non-sense .

c. regulate development of organs in infant .

12)_ The primer is defined as :

a. segments of oligonucleotides of DNA .

b. attach to 5 end of DNA .

c. attach to 3 end of DNA .

13)_ The preferred modification bases are :

a. A-C

b. C-G

C. A-T

14)_ The leading and lagging strand are formed during :

a. Initiation of replication .

b. Initiation of transcription .

c. Elongation of replication .

d. Elongation it transcription .

15)_ Repair of pyrimidine dimmer :

a. mismatch repair .

b. base excision repair .

c. nucleotide excision repair .

16)_ in translation initiation :

a. methyl-tRNA binds first at A site .

b. eTF2 with 4Ds subunits bind for preinitiation complex .

c. eF2 is phosphorylated by GTP .

d. mRNA , 60s subunit forming the Initiation factor .

اللجنة العلمية للدفعة 35 طب بشراي
Scientific committee of the batch 35 human medicine

17)_ which of the following enzymes are used to join bits of DNA

a. DNA ligase .

b. DNA polymerase .

c. primase .

d. endonuclease .

18)_ semi conservative replication of DNA was first demonstrated in :

a. Escherichia coli .

b. streptococcus pneumonae .

c. salmonella typhimuriam .

d. drosophila melanogaster .

19)_ mode of DNA replication in E.coli is :

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

a. conservative and unidirectional .

b. semiconservative and unidirectional .

c. conservative and bidirectional .

d. semiconservative and bidirectional .

20)_ When DNA replication starts :

a. the phosphodiester bonds between adjacent nucleotides break

b. the bonds between nitrogen bases and deoxyribose suger break .

c. leading strand produces okazaki fragments .

d. the hydrogen bonds between the nucleotides of two strands break .

21)_ During the replication of DNA, the synthesis of DNA on lagging strand takes place in segments, these segments are called :

a. satellite segments .

b. double helix segments .

c. Kornberg segments .

d. okazaki fragments.

22)_ The Elongation of the leading strand during DNA synthesis :

a. progressess away from replication fork .

b. occur in 3'-5' direction .

c. produces okazaki fragments.

d. depends on the action of DNA polymerase.

23)_ Eukaryotes differ from prokayotes in mechanism of DNA replication due to :

a. different enzymes for synthesis of leading and lagging strand .

b. use of DNA primer rather than RNA primer .

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

c. unidirectional rather than bidirectional replication.

d. discontinuous rather than semi discontinuous .

24)_ True replication of DNA is possible due to :

a. hydrogen bonding .

b. phosphate backbone .

c. complementary base pairing.

d. none of above .

25)_ Unwinding of DNA is done by:

a. helicase .

b. ligase .

c. hexonuclease .

d. topoisomerase .

26)_ DNA synthesis can be specifically measured by estimating the incorporation of radio labeled :

Scientific committee of the batch 35 human medicine

a. uracil.

b. thymine .

c. adenine .

d. deoxyribose suger .

27)_ The process involved in the RNA formation on the DNA templateis :

a. transcription .

b. translation .

c. replication .

d. transformation .

28)_ The enzyme required for transcription is :

a. restriction .

b. DNA polymerase .

c. RNA polymerase .

d. RNAase .

29)_ Transcription is the transfer of genetic information from :

a. DNA to RNA .

b. tRNA to mRNA .

c. DNA to mRNA.

d. mRNA to tRNA .

30)_ RNA required for the protein synthesis :

a. mRNA

b. tRNA

c. rRNA

d. all of above

31)_ A promoter site on DNA :

اللجنة العلمية للدفعة 35 طب بشراي
Scientific committee of the batch 35 human medicine

a. initiates transcription .

b. regulates termination .

c. codes for RNA .

d. transcribes repressor .

32)_ Sigma factor is component of :

a. DNA ligase .

b. DNA polymerase .

c. RNA polymerase .

d. endonuclease .

33)_ What is the main function of tRNA in relation to protein synthesis:

a. inhibits protein synthesis .

b. proof reading .

c. identifies amino acids and transport them to ribosomes .

d. all of these .

34)_ RNA polymerase (Ochoa 1953) has polypeptide chains :

a. 2

b. 3

c. 4

d. 5

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

35)_ Which site of tRNA molecule hydrogen bonds to a mRNA molecule :

a. codon .

b. anticodon .

c. 5' ends of the tRNA molecule .

d. 3' ends of the tRNA molecule .

36)_ The DNA chain acting as template for RNA synthesis has the following order of bases ,AGCTTCGA, What will be the order of bases in mRNA :

a. TCGAAGCT

b. UGCUAGCT

c. TCGAUCGU

d. UCGAAGCU

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

37)_ Genetic code is :

a. the sequence of nitrogenous bases in mRNA molecule that codes for a protein .

b. is a triplet code .

c. is non-overlapping .

d. all of these .

38)_ Translation is the :

a. synthesis of DNA from a mRNA template .

b. synthesis of protein from mRNA template .

c. synthesis of RNA from a mRNA template .

d. synthesis of RNA from a DNA template .

39)_ Translation occurs in the :

a. nucleus .

b. cytoplasm .

c. nucleolus .

d. lysosome .

40)_ During translation ,proteins are synthesized :

a. by ribosomes using the information on DNA .

b. by lysosome using the information on DNA .

c. by ribosomes using the information mRNA .

d. by ribosomes using the the information on rRNA .

41)_ The enzyme involved in amino acid activation is :

a. ATP synthetase .

b. aminoacyl tRNA synthetase .

c. aminoacyl mRNA synthetase .

d. aminoacyl rRNA synthetase .

42)_ Which of the following RNA molecules serves as an adaptor molecule during protein synthesis :

a. rRNA

b. mRNA

c. tRNA

d. tRNA and mRNA

43)_ In prokaryotes ,the first amino acid in the polypeptide chain is:

a. methionine .

b. N-methyl methionine .

c. N-formyl methionine .

d. all of these .

44)_ In prokaryotes ,the ribosomal binding site on mRNA is called:

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

a. Hogness sequence .

b. Shine-Dalgaron sequence .

c. Pribnow sequence .

d. TATA box .

45)_ During translation , the role of enzyme peptidyl transferase is :

a. transfer of phosphate group .

b. amino acid activation .

c. peptide bond formation between adjacent amino acid .

d. binding ofribosome subunits to mRNA .

46)_ Polysomes are :

a. aggregation of ribosomes .

b. aggregation of lysosomes .

c. mRNA molecules to which many ribosomse are attached simuitaneously .

d. all of these .

47)_ Which is the energy rich molecule required for initiation of translation :

a. ATP.

b. GTP .

c. CTP .

d. AMP .

48)_ eRF1 is the release factor in eukaryotes that require :

a. ATP for its binding to ribosomes .

b. GTP for its binding to ribosomes .

c. ATP and GTP for binding to ribosomes .

d. Mn+2 for its binding to ribosomes .

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

49)_ In eukaryotes , translation is initaited by the binding of ribosomes to the :

a. pribnows box .

b. Howgness box .

c. 5' cap .

d. poly A tail .

50)_ hsp 60 and 70 are proteins involved in :

a. initiation of translation .

b. Elongation of translation .

c. termination of translation .

d. protein folding .

51)_ The chacferisfic of genetic code all of the following <u>except:</u>

a. triplel

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

b. non overlapping , no punctuation

c. nearly universal

d. the degeneracy is property for an amino acid to have more than one codon

52)_ in eukaryotic the initiation process requires:

a.4os ribosomal subunit

b.If1

c. initiating f Het-tRNA

d. elongation factor

e. UMP

53)_ aminoacyl tRNA transfuse does all of <u>except:</u>

a. hydrohyzing and recoganiation of transfer RNA

b. all of aminoacyl tRNA is consired with a single AAs

54)_ missense mutation all are true <u>except:</u>

a. the codon containing the charged base become termination

b. single base change replace with another completely difference

c. single base change replace with another completely same

d. e.g sickle cell anomia

55)_ DNA methylation is a mechanism for changing :

a. the bases sequence of tRNA , with altering its coding function

b. the bases sequence of RNA, with altering its coding function

c. the bases sequence of DNA, without altering its coding function

d. the bases sequence of DNA, with altering its coding function

56)_ topoisomerases are enzymes that can :

a. untwist the bases of DNA or RNA to serve as a template

b.to relax or insert supercoils

c. to add prime

d. to remove the prime

57)_ translation is a process that:

a. start by elongation.

b. start by initiation of translation.

c. start by activation of A.A.

d. start by post – translation process.

58)_ in silent mutation:

a. it occurs in the change of the 1 base.

b. occurs if the change was in the 2 base.

c. occurs if the change was in the3 base.

d. occurs in addition or deletion of a base.

59)_ regarding RNA polymerase:

a. they need a primer.

b. they cannot repair mistakes.

c. they have endonuclease activity.

d. they have exonuclease activity.

60)_ transition mutation:

a. occurs when a purine is substituted for a pyrimidine or vice – versa

b. it is from shift mutation

اللجنة العلمية للدفعة 35 طب بشراي
Scientific committee of the batch 35 human medicine

c. decrease in frequency in the presence of base analogs

d. results from substitution of one purine for another or of one pyrimidine for another for another

61)_ a replication :

a. is semiconservative

b. requires only proteins with DNA polymerase activity

c. requires a primer in eukaryotes but not prokaryotes

d. must begin with an excision step

62.the sigma subunit of prokaryotic RNA polymerase:

a. is part of the core enzyme

b. its released in initiation step

c. must be present for transcription to occur

d. must be present for transcription to occur

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

63)_ Degeneracy of the genetic code denotes the existence of :

a. multiple codons for a single amino acid

b. codons consisting of only two bases

c. base triplets that do not code for any amino acid

d. different systems in which a given triplet codones for different amino acid

64)_ formation of mature insulin includes all of the following <u>except:</u>

a. removal of signal peptide

b. folding into a three-dimensional structure

c. carboxylation of glutamate residues

d- disulfide bond formations

65)_ During initiation of protein synthesis

a. methylation- tRNA appear at the site of the 80s initiation complex

b. if2 end the 40s ribosomal subunit participation in forming a preinitiotion

c. if 2 is phosphoryiated by GPT

d. A complex of mRNA 60s ribosomal subunit and certain iniation factors is formed

66)_ structural genes can be defined as:

a. they have no permanent location in the chromosomes

b. they are involved in the process of malignant transformation

c. they produe repressor molecules

d. they specify the protein synthesis

67)_ the pyrimidin dimmers can be repair by :

a. mismatch repair

b. base excision repair

c. nucleotide excision repair

d. double – strand break repair

68)_ All of the following statements about telomerase are not correct <u>except:</u>

a. the DNA component acts as a template for the synthesis of a segment of DNA

b. it adds telomerase to the 3-end of the DNA

c. it adds telomerase to the 3-end of the DNA

d. .it adds telomerase to the 5-end of the DNA

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

*Answers:

1)_ B	2)_ C	3)_ A	4)_
5)_	6)_	7)_ D	8)_ A
9)_ D	10)_ D	11)_ B	12)_ C
13)_ A	14)_ C	15)_ B	16)_ A
17)_ A	18)_ A	19)_ D	20)_ D
21)_ D	22)_ D	23)_ D	24)_ C
25)_ A	26)_ B	27)_ A	28)_ C
29)_ C	30)_ D	31)_ A	32)_ C
33)_ C	34)_ D	35)_ B	36)_ D
37)_ D	38)_ B	39)_ B	40)_ C
41)_ B	42)_ C	43)_ C	44)_ B
45)_ C	46)_ C	47)_ B	48)_ B
49)_ C	50)_ D	51)_ D	52)_ A
53)_	54)_ A	55)_ C	56)_ B
57)_ C	58)_ C	59)_ B	60)_ A
61)_ B	62)_ B	63)_ D	64)_ C
65)_ B	66)_ D	67)_ D	68)_ B

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

GIT

*select the correct answer:

1)_Lipid esterase and phospholipase A2 activated by:

A. Colipase

B. lipase

C. bile salt

D. Cl+,Br+

2)_Sympathetic effects on salivary glands produce:

A. vasodilation

B. secretion rich in mucus from submandibular gland only

C. watery secretion rich in ptyalin

D. Salivary lipase secretion from lingual glands

3)_Gastric mucin:

A. Is a glycoprotein with low molecular weight

B. Is secreted by chief cells

C. Deficiency of gastric mucin develop of sickle cell anemia

D. Acts as protection against development of gastric ulcer

4)_Pepsin is an endopeptidase, specific for peptide formed by:

A. Lysine-lysine-tyrosine

B. Lysine-phenylalanine-tyrosine serine

اللجنة العلمية للدفعة 35 طب بشرى
Scientific committee of the batch 35 human medicine

C. Serine glycine-proline

D. Glycine-serine-proline

5)_Which of the following receptors stimulated HCL secretion:

A. Histamine,acetylcholine and gastrin receptors

B. Histamine,cholecystokinin and secretin receptors

C. Acetylcholine, gastrin and secretin receptors

D. Cholecystokinin, gastrin and histamine receptors

6)_Secretin hormone stimulate:

A. The duodenum to secrete enteropeptidase

B. Pancreatic secretion rich in enzymes

C. HCO3 secretion by bile ducts

D. Contraction of gall bladder

7)_Colipase activate pancreatic lipase through:

A. Inhibit bile salt

B. Activate bile salt

C. Aggregate bile salt

D. Bind to bile salt

8)_Gastrin is secreted from TG cells:

A. Has inactive fragment in last 5-A.As from NH3-terminal

B. its secretion ⬆ mpathetically (fear & depretion)

C. its secretion ⬆ response of glucogen&calcitonin

D. ⬆ its secretion by chemical transmitter (gastrin releasing peptide

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

9)_Abnormalities in digestion and absorption of protein produce:

A. Chronic gastritis

B. celiac disease

C. Steatorrhea

D. lactase deficiency

10)_Trypsinogen is activated to trypsin by:

A. Removal 5A.As from the COOH-terminal

B. The removal 6A.As from COOH-terminal

C. The removal 6A.As from amino-terminal

D. The removal 42A.As from amino-terminal

11)_Non-steroidal are effective anti-inflammatory drugs which act by:

A. Stimulating cyclo-oxygenase enzyme activity

B. ⬆ Prostaglandins in the stomach& duodenum

C. Inhibiting somatostatin

D. Inhibiting cyclo-oxygenase enzyme activity

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

12)_One cause of duodenal ulcer is:

A. ⬆ the secretion of hormone that stimulate enough alkaline

B. Rapid emptying of gastric contents into the duodenum

C. Delay emptying of gastric contents into the duodenum

D. Gastric hypo secretion

13)_Pigment stones caused by:

A. Excess cholesterol in bile

B. Excess bile salt in bile

C. Chronic haemolysis

D. Estrogenic influences

*Answers:

1	**C**
2	**B**
3	**D**
4	**B**
5	**A**
6	**C**
7	**D**
8	**D**
9	**B**
10	**C**
11	**D**
12	**B**
13	**A**

اللجنة العلمية للدفعة 35 طب بشري
Scientific committee of the batch 35 human medicine

2020

نماذج بايو ترم ثالث

Second year /third term

(molecular, GIT,respiration)

(MSQ, Full blanket and essays)

إعداد وتجميع :

محمد البـدوي & أسامه القاضي

First: molecular biology

1-The genetic code is:

a) Ambiguous

b) Overlapping

c) Degenerate

d) None specific

e) None of the above

2. In contrast to DNA polymerase, RNA polymerase:

a) Fills the gap between Okazaki fragments

b) Works only in the 5'to 3'direction

c) Edits as it synthesizes

d) Synthesize RNA primer to initiate DNA synthesis

e) Adds nucleoside monophosphates to the growing polynucleotides

3. A promoter site on DNA:

a) Transcribes repressor

b) Initiates transcription

c) Codes for RNA polymerase

d) Regulates termination

e) Translates specific proteins

4. The portion of DNA which is transcribed but not translated is called:

a) Insert

b) Intron

c) Vector

d) Exon

e) Ribozyme

5. Which of the following sequences is complementary to TGGCAGCCT:

a) TCCGACGGT

b) ACCGTCGGA

c) ACCGUCGGA

d) AGGCTGCCA

e) TGGCTCGGA

6. tRNA reacts specifically with:

a) Specific aminoacyl-adenylates

b) ATP

c) Free amino acids

d) The Golgi apparatus

e) Nuclear DNA

7. The polymerase chain reaction (PCR) requires:

a) A double stranded DNA at least partially of known sequence

b) A synthetic non-complementary RNA

c) Dideoxynucleotide triphosphates

d) Reverse transcriptase

e) A pair of specific mismatched DNA primer

اللجنة العلمية ط٣٦ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

8-PRPP is:

a) An intermediate in de novo purine biosynthesis

b) Involved in biosynthesis of NAD+ and NADP+

c) An intermediate in pyrimidine biosynthesis

d) Intermediate in the salvage pathway

e) All of the above is correct

9- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5'to 3' direction

b) Temple strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) Synthesis occurs in both strands

e) It is a conservative process

10-phosphoribosyl-1-pyrophosphate (PRPP) is an intermediate in:

a) The de novo synthesis of purine nucleotides

b) The de novo synthesis of pyrimidine nucleotides

c) The salvage pathway for the synthesis of purine nucleotides

d) Both A and C

e) All of the above are correct

11- The sigma subunit of prokaryotic RNA polymerase:

a) Is required to hold the subunits of the core enzyme together

b) Remains with the RNA polymerase until the termination of transcription

c) Is required for proper recognition of promoter

d) Contains the active site for RNA synthesis

e) Is required for termination of transcription

12- An anticodon is:

a) The part of DNA molecule that codes termination

b) A 3-nucleotide sequence of messenger RNA molecule

c) A specific nucleotide sequence of a tRNA molecule

d) A nucleotide triplet of a ribosomal RNA molecule

e) Covalently bound to colon

13- The polymerase chain reaction (PCR) requires:

a) A double stranded DNA of totally unknown sequence

b) A pair of synthetic RNA primers

c) Dideoxynucleotide triphosphates

d) Reverse transcriptase

e) Both B and D are correct

14- In lagging DNA strand:

a) There are several RNA primers

b) DNA synthesis is discontinuous

c) Polymerization proceeds in 5'3' direction

d) DNA polymerase III is needed

e) All of the above is correct?

15- Which of the following statements about DNA ligase is correct?

a) DNA ligase seals the gaps between RNA primers and Okazaki fragments

b) DNA ligase makes single stranded nicks which relieve the supercoiling

c) The energy source for DNA ligase can be either NADPH or GTP depending

d) on the species

اللجنة العلمية ط36ب بشري

e) DNA ligase joins the free 3' hydroxyl on the Okazaki fragment to the 5'

f) carbon on the growing strand

e) It is classified as endonuclease enzyme

16- DNA synthesis and RNA synthesis differ in:

a) Production of a complementary polynucleotide from a template

b) Release of pyrophosphate as a reaction product

c) Synthesis proceeds in the 5' to 3' direction

d) Proofreading to eliminate errors

e) First nucleotides incorporated are RNA

17-The Polymerase Chain Reaction

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for DNA replication

e) All of the above is correct

18- Initiation of protein biosynthesis:

a) Involves elongation factor 2

b) Starts by association of the two ribosomal units

c) Requires binding of the ternary complex to 40S subunit

d) Does not involve association of the two ribosomal subunits

e) Requires CTP

19- Amino-acyl-tRNA synthetase:

a) Recognizes codons on mRNA

b) Recognizes the anti-codon on the tRNA

c) Catalyses the binding of amino acid to its respective tRNA

d) Recognizes the Darm of the specific tRNA

e) Both C and D are correct

20- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5' to 3' direction

b) Template strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) Synthesis occurs in both strands

e) It is a conservative process

21- Which of the following is needed for a polymerase chain reaction?

a) A thermostable DNA polymerase

b) Helicase

c) Primase?

d) One of the target DNA strands

e) Reverse transcriptase

22- The following is true about DNA-dependent RNA polymerase:

a) Pol I is responsible for synthesis of rRNA and it is less sensitive to alphab) amanitin

c) Pol II is responsible for synthesis of mRNA

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch36Human Medicine

d) Pol III is responsible for synthesis of tRNA

e) RNA Polymerases have unwindase activity

f) All of the above is correct

23- In eukaryotes, hnRNA's undergo elaborate post-transcriptional processing as follows:

a) tRNA is charges with its respective amino acids

b) mRNA is capped at the 5' end

c) rRNA is polyadenylated at the 3' end

d) Intron sequences are spliced by snRNA's

e) Exons are removed and intros are ligated

24- Reverse transcriptase exhibits the following functions:

A) RNA directed DNA synthesis

b) DNA dependent RNA synthesis

c) DNA dependent DNA synthesis

d) Proofreading of cDNA

e) None of the above is correct

25- Transcriptional Activator Proteins:

a) Transcribe a messenger off a DNA template

b) Bind to ribosomes to activate the production of specific proteins

c) Are produced during an infection of bacteria by a phage

d) Are essential to function of transfer RNA's during translation

e) Bind regions near a eukaryotic gene and allows an RNA polymerase to

f) transcribe a gene

26- The Wobble Hypothesis says:

a) There is loose pairing between the 5' end of a single codon and the 3' end of

b) more than one anticodon

c) There is loose pairing between the 5' end of a single anticodon and the 3'

d) end of more than one codon

27-What effect would this mutation most likely cause?

a) The RNA will not be translated

b) The RNA transcribed from the gene will be much longer than normal

c) The polypeptide produced will be shorter than expected

d) The polypeptide produced will have extra amino acids

e) No effect at all

28- What is the maximum number of amino acids in a peptide coded by the polyribonucleotide

a) Six

b) Two

c) Three

d) Four

e) Five

29- All of the following statements about ribosomes are correct except:

a) All ribosomes have two subunits

b) Eukaryotic cells have 80S ribosomes and protein synthesis on these

c) ribosomes can be inhibited by cycloheximide

اللجنة العلمية ط٣٦ب بشري
The Scientific Committee Of The Batch Human Medicine

d) Prokaryotic cells have 70S ribosomes and protein synthesis on these

e) ribosomes can be inhibited by chloramphenicol

30- Which of the following is mimicked by the antibiotic puromycin?

a) Peptidyl-tRNA

b) Aminoacyl-tRNA

c) Peptidyl transferase

d) Translation release factors

e) Formylmethionyl-tRNA

31-. Deamination of cytosine in mRNA produces:

a) An insertion mutation

b) A deletion mutation

c) A point mutation

d) A purine

e) Thymine

32-which of the following mutations would be the LEAST likely to result in a faulty protein?

a) A single base change in codon 12 complementary to nucleotide 36 in mRNA

b) A nonsense mutation in the codon for amino acid 37

c) Deletion of three bases of the codon for amino acid 19

d) A single base change such that amino acid 12 is now leucine rather than

33- Transcription of genes that code for proteins is accomplished by:

a) RNA polymerase III in eukaryotes

b) Reverse transcriptase

c) RNA polymerase I in eukaryotes

d) Both A and B are correct

34- The requirements of RNA polymerase for synthesis of RNA include:

a) RNA primer

b) DNA template

c) All four deoxyribonucleoside triphosphates

d) Both A and B

e) Both B and C

35-In PCR:

a) The technique is used for DNA cloning

b) RNA polymerase is needed

c) Primers should be in excess

d) All steps are performed at room temperature

e) Radiolabeled probe is needed

36- Which of the following molecules is NOT a component of the 43S pre-initiation complex?

a) GTP

b) Eukaryotic initiation factor 2 (IF-2)

c) mRNA[1]

d) Methionyl-tRNA

e) 40S sub-unit

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch36Human Medicine

37-Which of the following uses ATP directly?

a) Formation of the 40S initiation complex

b) Binding of the amino acyl transfer RNA to the ribosome

c) Synthesis of amino acyl-tRNA

d) Activation of the amino group for peptide bond synthesis

e) Movement of mRNA on the ribosome

38- A mRNA coding for eukaryotic polypeptide chain is attached to seven ribosomes, which of the following is TRUE for this polyribosome complex?

a) The ribosome nearest to the 5' end of the mRNA is carrying a longer

b) polypeptide chain than is the ribosome nearest to the 3' end

c) The ribosome nearest to the 3' end of the mRNA is carrying a longer

d) polypeptide chain than is the ribosome nearest to the 5' end

39- In general, eukaryotic RNA processing can be best described by the following:

a) All RNA transcripts are finally processed in the nucleus

b) It results in the addition of nucleotides to the primary transcript of

c) ribosomal RNA

d) It results in the addition of formyl groups to methionine

e) It includes the addition of a tail of polyadenylic acid at the 5' end

f) It includes the modification of nucleotides in transfer RNA

40- Topoisomerase enzymes are important in the replication of DNA because they:

a) Covalently join Okazaki fragments

b) Relax supercoiled DNA created by helicase action

c) Degrade nucleosomal histones

d) Proofread newly synthesized DNA

e) Synthesize the RNA primer

41- Which of the following is not true for both DNA polymerase and RNA polymerase?

a) Both require a template

b) Both reactions produce pyrophosphates as a product

c) Both add 5' nucleotides to 3' hydroxyl groups

d) Both utilize 5' nucleoside triphosphates as substrates

e) Both require a primer

42- Codons on mRNA may be accurately described by all of the following except:

a) They are read in a non-overlapping fashion

b) They can form hydrogen bonds with tRNA

c) An amino acid can have more than one codon

d) 6 successive bases along the mRNA can code for 4 amino acids

e) The same codon specifies the same amino acid in almost all species

The Scientific Committee Of The Batch 36 Human Medicine

43-. The RNA primer in replication differs from other RNA molecules in that it:

a) Contains T instead of U

b) Is formed by DNA polymerase I

c) Found in a form of DNA-RNA double-stranded hybrid

d) Contains a triphosphate group at the 5' end immediately after synthesis

e) Is synthesized in the 3' 5' direction

44- The role of peptidyl transferase in protein biosynthesis is to:

a) Promote the movement of peptidyl-tRNA from the A site to the P site on

the ribosome

b) Promote the movement of aminoacyl-tRNA from the P site to the A site on

the ribosome

c) Catalyze the ejection of free tRNA from the P site on the ribosome

d) Catalyze the formation of peptide bonds

e) Cause recognition of termination codons by release factors

45- How does chloramphenicol work to inhibit protein synthesis?

a) It binds to 23S rRNA?

b) It causes mutations in mRNA making it unusable

c) It intercalates into the DNA blocking RNA polymerase

d) It binds to the sigma factor preventing initiation

e) It inhibits the peptidyl-transferase activity of 28S (a component of 60S subunit)

46- The following is not true about polymerase chain reaction:

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for in vivo replication

e) All of the above is correct

47- The polymerase chain reaction (PCR)

a) Uses flanking primers

b) Uses restriction enzymes

c) Uses varying temperatures

d) All of the above

e) Both A and C

48- If the PCR reaction is 100% efficient, one copy of template DNA should be amplified to …… copies after n cycles:

a) 2n

b) n2

c) 2n

d) 10n

e) I can't tell having this information

49- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5' to 3' direction

b) Template strand is read in a 3' to 5' direction

اللجنة العلمية ط36ب The Official Group Of The Batch 36 Human Medicine

c) Lagging strand synthesis is discontinuous

d) A primer is not required

e) Synthesis occurs in both strands

50- Select the incorrect statement. Messanger RNA:

a) Is translated in the direction 5'to 3'

b) Is often derived from a large precursor by processing in eukaryotes

c) Is synthesized in the direction 3' to 5'

d) Has a Poly A Tail

e) Is a Heterogeneous Molecule

51- In DNA Replication:

a) The newly synthesized DNA strand is growing in direction 5'3'

b) DNA synthesis by the leading strand is continuous

c) DNA Helicase facilitates processive unwinding of double strands d)

Origin of replication is identified by double strand DNA binding protein

d) All of the above is correct?

Full the blanket:

Q. Write the suitable word for each of the following statements:

1- The control the development of organ during early embryogenesis .....

2- They are acting as silencer for gene expression and /or mRNA translation and considered as genome immune system…….

3- In prokaryote called Oric and in eukaryotic called autonomous replicating sequences……

4. The protein assembly at the origin of replication……

5. In higher organisms is protective and defects in it result in inherited disease and cancer .....

6- Adenine of one strand of DNA will pair with thymine of the opposite strand by two hydrogen bonds while guanine will pair with cytosine by three hydrogen bonds……

7- They are the precursor molecules that can generate mRNA and tRNA …….

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

8- One function of it may serve as an entry site for RNA polymerase……

9. Corrects error made when DNA is copied .....

10- Used to replace regions of damaged DNA up to 30 bases in length…….

11-Permanent change in DNA .....

12- Special sequence present at the end of DNA and not carry any genetic information .....

13- The process of synthesis of RNA from DNA template .....

14-A particular region at which RNA polymerase binds to DNA .....

15-An important mechanism for repairing damage DNA as a result of ionizing radiation or oxidative free radical generation .....

16-An amino acid may have more than one codon .....

17-pseudogene can be defined as ……

18-the most methylated base is …… and…….

19-the prime can be defined as.....

20-the initiation of replication in prokaryotic is..... while initiation codon in translation is…….

21-nick translation can be defined as.....

22-the main cause of mutation

a- ……. B- …….

23-some feature of codon are:

a-.....

b-..... c-……

24-non-sense mutation mean…….

25-mismatch repair correct error made from..... but excision repair correct

error made by.....

26-the pyrimidine dimer induced by UV can be repair by .....

27- Genetic codon define as .....

28-. Mismatch repair made with errors during .....

29-. The site of initiation during replication in eukaryote cells called .....and in prokaryote cells called .....

30-. The post transcriptional modification of mRNA are .....and .....

اللجنة العلمية ط٣٦ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

31. Degeneracy of the genetic codon define as .....

32-. Palindrome sequence is .....

33-. Leading strand define as .....

34-. Types of supercoiling of linear DNA .....

35- Homo gene can be define as .....

36-Central dogma is .....

37-pseudogene Can be defined as.....

38- Then prime can be defined as me .....

39-The initiation site of replication in prokaryotic cell is.....

40- Non acceptable missense occur when.....

41-. Nucleotide excision repair correct error made by.....

42-Non sense Mutation is

43-Mismatch repair correct error Cause by ..... but pyrimidine dimer repair is.....

44-. Replication means.....

45- the second stage of replication is .....

46-function of polymerase. is proofreading which mean.....

47-Code gene Can be defined as.....

48-Function of 5———3 exoneuclease is ..... while function of 3-— 5 exoneuclease is .....

الإجابات:

1- homeotic gene

2-small interference RNA

3-origin of riplication

4-Replisomes

5- methylation process of DNA

6- chargaff's rule or Base pairing

7-ht.nuclear RNA

8-Inherence

9- Mismatch repair

10- Nucleotide excision repair

11- Mutation

12- Telomeres

13-transcription

14-promoters

15-Double strand break repair

16-degeneracy of genetic code

17-not expressed gene

اللجنة العلمية ط36ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

18-cysteine- Guanine

19-

20-

21-

22-

23-

24-

25-

26-

27-

28-

29-

30-

31-

32-

33-

34-

35-

36-

37-

38-

39-

40-

41-

42-

43-

44-

45-

46-

47-

48- Excision repair – proofreading activity

Essays :

Write short note on the following:

1-siRNA

2-second step in replication

3- termination of transcription by p(RHO) protein.

4-Enumerate the Mechanism of DNA repair

5- illustrate the 4th step of translation

6-write about :

-non –sense mutation

-degenerate codon

7-DNA polymerase enzyme

8-five properties of genetic code.

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

Second :GIT

1- Pigment stones caused by :

a) Excess cholesterol in bile

b) Excess bile salts in bile

c) Chronic hemolysis

d- Estrogenic influences

Note\the chronic hemolysis increases the amount of direct or conjugate bilirubin in bile that will accumulate and lead to pigment stone

2- One cause of duodenal ulcer is :

a) Increase the secretion of hormone that stimulate enough alkaline

b) Rapid emptying of gastric contents into the duodenum

c) Delay emptying of gastric contents into the duodenum

d) Gastric hypo secretion

Note\as the mucous lining of the duodenum is very delicate it will be ulcerated by the rapid gastric emptying

3- NSAIDS effect on stomach and act by:

a) Stimulating cyclo-oxygenase enzyme activity

b) Increase the prostaglandins in the stomach and duodenum?

c) Inhibiting somatostatin

d) Inhibiting cyclo-oxygenase enzyme activity

Note \the cyclooxygenease is the key enzymes in synthesis of the prostaglandins which are one of the mechanisms that protect the gastric mucosa from the digestion effect of excess secretion of pepsin and hcl through stimulation of bicarbonate secretion and inhibition of HCL secretion and increase the blood flow

4- Trypsinogen is activated to trypsin by the :

a) Removal of 5 A.As from the COOH-terminal

b) Removal of 6 A.As from the amino-terminal

c) Removal of 6 A.As from the COOH-terminal

d) Removal of 42 A.As from the amino-terminal

5- Abnormalities in digestion and absorption of proteins produce :

a) Chronic gastritis

b) Celiac disease

c) Steatorrhea

d) Lactase deficiency

Note\that the celiac disease is result from defect in the enzymes that responsible for digestion of wheat protein called gluten into large poly peptides that rich in glutamine amino acid which decrease the absorption capacity of small intestine to other nutrients that result in manifestations of malabsorption as steatorrhea

6- Gastrin that secreted from TG cells

a) Has inactive fragment in the last 5 A. As from the amino terminal

b) Its secretion increases sympathetically (fear and depression)

c) Its secretion increases in response to glucagon and calcitonin

اللجنة العلمية ط36ب بشري

d) Its secretion increases by a chemical transmitter (GRP)

7- Colipase activates pancreatic lipase through:

a) Inhibition of bile salts

b) Activation of bile salts

c) Aggregation of bile salts

d) Binding to bile salts

8- Secretin hormone stimulates:

a) The duodenum to secrete enteropeptidase enzyme

b) Pancreatic secretion rich in enzymes

c) HCO3 secretion by bile ducts

d) contraction of gall bladder

9- Which of the following receptors stimulate HCL secretion

a) Histamine, acetylcholine, and gastrin receptors

b) Histamine, CSK, and secretin receptors

c) Acetylcholine, gastrin and secretin receptors

d) CSK, gastrin, and histamine receptors

10- Pepsin is an endopeptidase, specific for peptide formed by:

a) Lysine, leucine, and tyrosine

b) Lysine, phenylalanine, tyrosine and serine

c) Serine, glycine, and proline

d) Glycine, lysine, and proline

Note\ that the pepsin enzyme acts on the peptide bonds that contain the carboxyl group of the aromatic amino acids as tyrosine and phenylalanine as well as tryptophan

11-Gastric mucin:

a) Is a glycoprotein with LMW

b) Is secreted by chief cells

c) Develop of sickle cell anemia caused by its deficiency?

d) Acts as protection against development of gastric ulcer

12- Sympathetic effects on salivary glands:

a) Vasodilation

b) Secretion rich in mucus from submandibular gland

c) Watery secretion rich in ptyalin

d) Secretion of salivary lipase from lingual glands

13- Lipid esterase and phospholipase A2 activated by:

a) Colipase

b) Lipase

c) Bile salts

d) Cl , Br

14- HCL plays some role in regulation of gastric emptying through:

a) Entry of acidic chyme into the duodenum

b) Reflex inhibition of the entry of gastric secretion

c) A and B

d) None of the above

Note\ the entry of the acidic chyme into the duodenum stimulate the duodenal mucosa to? initiate the

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch Of Human Medicine

enterogastric reflex and secretion of the inhibitory hormones and both will decrease the gastric emptying as well as gastric secretion

15- The Di and Tri peptides absorption are undergo cytoplasmic

hydrolysis except Di and Tri peptides containing:

a) Glutamate, aspartate, and taurine

b) Proline, tryptophan, and alanine

c) Proline, hydroxyproline, and alanine .

d) Aspartate, alanine, and taurine

16- The pepsinogen to be activated to pepsin removal of:

a) 33 A.As from the amino-terminal remove

b) 44 A.As from the amino-terminal remove

c) 42 A.As from the amino-terminal remove

d) 24 A.As from the amino-terminal remove

17- One action of CCK:

a) Stimulates gastric secretion

b) Stimulates the duodenum to secrete enterokinase

c) Inhibits the pancreatic secretion ?

d) Stimulates the mucous secretion

Note , the enteropeptidase or the enterokinase is secreted by the intestinal mucosa under effect of CCK which is important for activation of trypsinogen into trypsin in the intestinal lumen

18- Pancreatic amylase hydrolyses starch, glycogen and dextrin to:

a) Lactose, maltotriose, and (1,4) oligosaccharides

b) Lactose, maltotriose, and (1,6) oligosaccharides

c) Maltose, maltotriose, and (1,4) oligosaccharides

d) Maltose, maltotriose, and (1,6) oligosaccharides

NOTE, the pancreatic amylase can exert its hydrolytic effect on the 1:4 glycosidic bond of the cooked starch and glycogen but not on the 1:6 bond

19- The main causes of duodenal ulcer is:

a) Increase production of somatostatin

b) Increase production of interleukin-1B

c) Decrease acid production

d) Local impairment of somatostatin production

NOTE, the Local impairment of somatostatin production allow the gastrin secreting cells to ?be released from the inhibitory effect of the somatostatin and increase the amount of gastrin hormone secretion which increase the amount of hydrochloric acid secretion that enter the duodenum and ulcers its delicate mucosa

20- Gastrin is:

a) Inhibitory hormone

b) Four types are identified

c) G34 is the most abundant and common

d) Its secretion is decreased by fear and depression

اللجنة العلمية ط36ب بشري
The Scientific Committee Of The Batch36Human Medicine

اللجنة العلمية ط36ب بشري

21- Cyclo-oxygenase 1 constitutively expressed as :

a) Inflammatory enzyme

b) House-keeping enzyme

c) Expressed in some tissues as brain and ovary

d) Largely induced at site of inflammation

22- H.pylori secreted all of the following except:

a) Cytotoxin

b) Cycloxygenase

c) Lipase?

d) Mucolytic enzyme

23- All the following about celiac disease except:

a) Defect in enzyme required for digestion of peptide

b) One of causes of malabsorption syndrome

c) Abnormalities in carbohydrate absorption

d) Appears in early childhood

24-……..hormones that regulate GIT secretion:

a) Gastrin, serotonine, and CCK

B) Acetylcholine, gastrin, and secretin

c) CCK, gastrin, and secretin

d) Gastrin, histamine, and CCK

25- All the following about VIP except:

a) Present in endocrine cells

b) Vasodilator

c) Inhibits gastric secretion

d) Inhibits electrolytes and water secretion

26- Prostaglandin plays a major role in gastric protection as they stimulate:?

a) HCL, mucus, HCO3 secretion and decrease blood flow

b) HCO3, mucus secretion and decrease blood flow

c) HCO3, mucus secretion and increase blood flow

d) None of the above

27- People with cystic fibrosis have a greatly diminished ability to secrete:

a) HCO3 into the pancreatic juice

b) HCL into the gastric juice

c) All of the above

d) None of the above

28- The lingual lipase:

A) Enzyme prefers the hydrolysis of large chain triglycerides

b) Is very important in adult

c) Is unusual enzyme that its PH 4

d) Is unusual enzyme that its PH 6

29- If the flow of salivary secretion increase so:

a) The level of Na,K,Cl increase whilst the level of HCO3

The Scientific Committee Of The Batch 36 Human Medicine

b) The level of Na,HCO3 ,Cl decrease whilst the level of K increase?

c) The level of Na,K,Cl decrease whilst the level of K constant

d) The level of Na, Cl,HCO3 increase whilst the level of K decrease

30- Steatorrhea can result from:

a) Obstruction of biliary truct due to gall stones

b) Spinal cord injury or pregnancy

c) Defective in digestion of protein

d) Defective in digestion of carbohydrate

NOTE, the reabsorption and digestion of the dietary lipids needs the bile salts which exert emulsification process and make micells with insoluble lipids but in case of biliary duct obstruction these salts is decreased so the lipids will be execreted in the stool

31- Regard Salivary alpha amylase:

a) Optimum PH 6

b) Hydrolysis starch to maltose by one step

c) Acts only on starch

d) Is activated by Cl and Br

32- Gastric mucin:?

a) Is a glycoprotein with LMW

b) Acts as an extrinsic factor for absorption of vitamin B12

c) Is secreted by the columnar epithelial cells of the stomach

d) Protection of the gastric mucosa from being digest by the pepsin

33- Gastrin secretion decreased by:

a) Protein hydrolysis

b) By glucagon and calcitonin

c) Distension of the antrum

d) Anger, anxiety and hostility

34- CCK stimulates the secretion of:

a) Enteropeptidase

b) HCO3 by bile ducts

c) Pancreatic secretion rich in mucus

d) HCL secretion from stomach

35- The gall bladder bile is:

a)More concentrated due to H2O absorption

b) High PH due to reabsorption of electrolytes ?

c) Low PH due to reabsorption of electrolytes

d) Low specific gravity

NOTE, the wall of gall bladder is preamble to Na and Cl so they will be reabsorbed and followed by water reabsorption so their concentration is decreased while that of bile salts is increased so the PH become low and this is necessary for the solubility of both cholestrol and Ca to prevent their accumulation in the form of stones

36- Histamine has the following characteristics except:

a) Bind to specific receptor on stomach

b) stimulate HCL secretion used adenylcyclase as a second messenger

c) Biogenic amine

d) Regulate GIT secretion

37- Secretin is:

a) A polypeptide of 17 A.As

اللجنة العلمية ط36ب بشري

b) A hormone secreted by I cells

c) Depends on its secondary structure for its activity

d) The 04 of it's A.As are identical and in the same position to glucagon

A- HCO3 into the pancreatic juice

B-HCL into the gastric lumen

C- All the above

d- Non of the above

38- All the following about celiac disease except:

A-One cause of malabsorption

B-Defect with enzyme of digestion of peptide

C- Abnormality of carbohydrate absorption

D-Appearance in early child hood

39-Hormone that regulate the GIT secretion :

A- CCK, Secretin ,serotonin

B-Acetylcholine ,CCK, gastrin

C- Gastrin, Histamine ,secretin

D-CCK, gastrin, Secretin

40-All the following about VIP except:

A- Present in the endocrine cells

B- Inhibit the gastric secretion

C- Vasodilator

D-facilitate the inhibition of electrolyte and water

41-People with cystic fibrosis , diminished secretion of:

42-Prostaglandin play major role in gastric protection through :

A- HCO3 ,mucus and decrease blood flow

B-HCO3 ,mucus and increase blood flow

C- HCL ,mucus and Increase blood flow

D- All the above

43--Alkaline tide preferred to increase the ph in blood and urine after ingestion of meal due to:

A- HCO3 injected to the blood

B- HCO3 to the the blood for each one H pumped to the parietal cells

C- Arrival of excessive HCO3 into the blood with HCL formation

D-None of the above

44-HCL play some role in regulation of gastric emptying through:

A- Entry of acidic chyme into the duodenum

B- Reflex inhibition of the entry of gastric secretion

اللجنة العلمية ط٣٦ بشري
The Scientific Committee Of The Batch 36 Human Medicine

C-A&B

d- Non of the above

45-Gastrin is:

A- Inhibitory hormone

B- G34 is the most abundant

C-It's secretion decreased by fear and depression

46- Secretion stimulates all the follow except:

A- Secretion of HCO3

B-Mucus secretion

C- Pancreatic enzymes Secretion

D- Inhibit of gastric secretion

47- Lingual lipase has property of:

A-Act on small chain of triglycerol

B- Work in acidic medium

48- Free (non-esterified) fatty acids in plasma

A-Account for less than 10 per cent of the total fatty acids in plasma

B- Are complexed with the plasma proteins

C- Decrease when the level of blood adrenaline rises.

D- Can be metabolized to release energy in cardiac and skeletal muscle

49- Modifying gastric function including all the following except:

A- By cutting vagal fibres to the pylorus increases the emptying rate

B-By enlarging the pyloric orifico increases the emptying rate. !

C- By making a side-to-side anastomosis between the stomach and jejunurn may cause peptic ulceration in the jejeunum.

D- To allow rapid gastric emptying may lead to low blood glucose levels after a meal E. To allow rapid gastric emptying may lead to a fall in blood volume and blood pressure

50- For each of the absorptive functions A-E, select the most appropriate absorption site from the following list of alimentary tract sites.

1. Stomach 2. Upper small intestine. 3. Lower small intestine.

4. Colon. 5. Rectum.

A. The site where most of the intestinal water is absorbed.

B. The site where most of the intestinal sodium is absorbed.

C. The main site of iron absorption. +5

اللجنة العلمية ط36 بشري
The Scientific Committee Of The Batch 36 Human Medicine

D. The main site of Vitamin B12 absorption.

E. The main site of bile salt absorption.

51-For each of the digestive functions A E, select the most appropriate digestive secretion in the following list of secretions.

1. Salivary secretion. 2. Gastric secretion. 3. Pancreatic secretion

4. bile. 5. Intestinal secretion.

A Splitting disaccharides.

B. Splitting triglycerides.

C- Absorption of vitamin B12.

D. Emulsification of fat.

E. Digestion of nucleic acids.

52-The lingual lipase is

a- Enzyme prefers the hydrolysis of large chain triglyceride.

b- Is very important in adult.

c-is unusual enzyme that it's PH 4.

d- is unusual enzyme that it's PH 6.

53- If the flow of salivary secretion increase so:

A- The level of Na+,cl-, increase whilst the level of HCO3.

b- The level of Na+,cl-,Hco3 decrease whilst the level of k increase.

c- The level of Na+, Cl-,k+ decrease whilst the level of k constant.

d- The level of Na+,cl-, Hco3 increase whilst the level of k decrease.

54-One function of gastric mucin is

a- Extrinsic factor essential for absorption of vitamin B12.

b- Buffering of gastric HCl.

c- Protection of gastric mucosal cells from being digested by trypsin.

55- The receptor that estimate the parietal cell to secrete HCl are:

a-Histamine, acetylcholine &gastrin receptor.

b- Histamine, cholecystokinin &gastrin receptor.

c- Acetylcholine, secretin& histamine receptor.

d- Cholecystokinin ,gastrin &secretin receptor .

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Part 36 Human Medicine

full the blanket:

1-Cholesterol stones caused by 1……. 2……

2-Malabsorption can be defined as.....

3- Pancreatic juice secretion are stimulates by the .....and.....hormones.

4- bile acids synthesized in the liver from

5- phospholipase are digest of phospholipids to produce.....and... .... and. .....and.....

6- CO2 combines with H2O in presence of .....enzyme.

7-H-pylori protects itself by..... enzyme

8-acute pancreatitis may result when activation of enzyme occur in …….or ……

9-in case of…… failure of absorption of vit. B12 occurs with the development of .....

10- three receptors activator or inhibitor of HCL formation -……. -…….-……

11- HCL helps in iron absorption by……

12- acetylcholine can simulate the electrolytes through……. - ……

13- biogenic amines are ……and ……

14-primary bile acids in human bile are ……and…… or every ..... pumped in to lumen.....is released in to blood .

15-HCL formation in parietal cells depends on ……and…….

16-gastrin and CCK are similar in……

17- lipid and H inhibit gastric secretion by three ways ……-……-……..

18- glucose and galactose are absorbed by…….

19- celiac disease results from ……

20- Acute gastritis can be defined as…… while chronic gastritis can be defined as……

21- The action of secretin to stimulate the secretion of ……

22- Gastrin Secretion inhibited or decreased by……

اللجنة العلمية ط٣٦ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

23- The site of carbohydrate digestion are

-……by …… enzyme

-…….by…… enzyme

-……by……..enzyme

24- Pepsin is an endopeptidase, specific for peptide bonds formed by……..While trypsin is specific to ……

25- For every H+ pumped in to the lumen a HCO3 is released into the blood and this is referred to as…….

26- Cholecystokinin secretion is stimulated by the presence of---------- While secretin secretion is stimulated by the ……

27-the intestinal enzymes are …….-…….-……..

Essays :

Write short note on the following:

1-fate of absorbed fatty acid .

2-chronic pancreatitis

3- absorption of primary and secondary bile acid

4- Importance of colipase

5- Stimulation of insulin and glucagon secretion after protein meals (comment)

6-malabsorption syndrome

7-Rapid emptying of gastric content to the duodenal leading to duodenal ulcer.

Essays (35) :

Write short note on the following:

1- Steatorrhea
2- Alkaline tide
3- Secretion hormone
4- Cholagogoues

اللجنة العلمية ط ٣٦ ب بشري

The Scientific Committee Of The Batch 36 Human Medicine

Third: cellular respiration

Choose the most correct answer

1- Cell respiration involve all of the following except

a- formation of acetyl CoA

b- Formation of NADPH+H

c- Oxidation of NADH+H

d- Oxidation of FADH2

e- Oxidation of acetyl CoA

Answer: b

2- The terminate electrons accepter in respiratory chain is

a- Cytochrome C

b- FAD

c- Molecular oxygen

d- Coenzyme Q

e- A and C?

Answer: C

3- CO inhibits the transfer of electrons from

a- FADH2 to CoQ

b- Cyt. C to CoQ

c- Cyt. C to O2

d- NADH+H to CoQ

e- None of the above

Answer: C

4- CoQ accept electron from

a- NADH+H

b- NADPH+H

c- FADH2

d- A and C

e- All of the above

Answer: C

5- Transport of cytoplasmic NADH+H to matrix of mitochondria by:

a- Malate – asparate shuttle ?

b- Carnitine shuttle

c- Albumin

d- Tricarboxylate transport system

e- None of the above

Answer: a

6- Which of the following energy coupling hypothesis can explain mechanism of substrate level phosphorylation in the cytosol:

a- Chemiosmotic energy coupling hypothesis

b- Chemical energy coupling hypothesis

c- Conformational energy coupling hypothesis

d- B and C

e- All of the above

Answer: d

7- ATP can be formed in the cytosol by:

اللجنة العلمية ط36ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

اللجنة العلمية ط36ب بشري

a- Oxidation phosphorylation

b- Substrate level phosphorylation

c- Oxidation and substrate level phosphorylation ?

d- A and C

e- None of the above

Answer: B

8- Reduced from of COQ can be oxidation by the action of:

a- Cyt. Oxidase

b- NADH-COQ reductase

c- Succinate COQ reductase

d- Cyt C -COQ .reductase

e- None of the above

Answer: D

9- NADH COQ reductase catalyze the oxidation of:

a- NADPH+H

b- FADH2

c- NADH+H

d- Succinate

e- None of the above

Answer: C

10- The energy released when electrons transport from NADH+H to Cyt C is enough synthesis

a- 1 ATP

b- 2 ATP

c- 5 ATP

d- 3,46 ATP

e- 2,5 ATP

Answer: E

11- The inhibitor of electron transport from COQ to CYT.C is

a- Rotenone

b- Antimycine A

c- Amytal

d- CO

e- None of the above

Answer: B

12- Oxygen can be toxic when it accepts:

a- 4 electron and 4 proton

b- 2 electron and 2 proton?

c- 1 electron

d- B and C

e- All of the

Answer: C

13- Cell can detoxify superoxide radical by:

a- Enolase

b- Superoxide dismutase and glutathione peroxidase

c- Glutathione peroxidase and superoxide dismutase

d- Reductase and hydratase

e- None of the above

Answer: B

14- Which of the following observation can be explained by chemo-osmotic energy coupling hypothesis:

a- Oxidative phosphorylation requires an intact inner mitochondrial membrane

اللجنة العلمية ط ٣٦ بشري
The Scientific Committee Of The Batch 36 Human Medicine

b- Electron transport results in transport of protons out of inner mitochondrial thereby creating a measurable electrochemical gradient across the inner mitochondrial membrane

c- Oxidative phosphorylation does not require an intact inner mitochondrial membrane

d- A and B

Answer: D

15- molecular oxygen (O2)

a- is used for oxidative Phosphorylation

b- used for hydroxylation oxygenation reaction

c- used to produce free radical

d- all of the above

Answer: A

16- characteristic of free radical

a- long lived

b- unstable

c- inactive

d- B,C

Answer: B

17- Reactive species

a- Include free radicals and oxidant

b- Increase during chronic infection?

c- Increase during sternous exercise

d- All of the above

Answer: D

18- Endogenous antioxidant

a- Uric acid

b- Vit.E

c- Lycopens

d- Carotenoids

Answer: A

19- Oxidation

a- Is gain of electron

b- Loss of hydrogen

c- Loss of oxygen

d- All of the above

Answer: B

20- Characteristic of free radicals

a- Short lived?

b- Stable

c- Inactive

d- B,C

Answer: A

21- Free radicals

a- Increase free radicals and antioxidants

b- Increase during chronic infection

c- Decrease during sternous exercise

d- All of the above

Answer: B

22- The following complexes act as a proton pump exxept:

a- Complex I

b- Complex II

اللجنة العلمية ط36ب بشري

c- Complex III

d- Complex IV

Answer: B

23- The rate of tissue respiration is raised when intracellular concentration of?

a- ADP increases

b- ATP increases

c- ADP decrease

d- None of these

Answer: A

24- Oxidase

a- Catalyze the removal of hydrogen from substrates

b- Use oxygen as hydrogen acceptor

c- Produce water or hydrogen peroxide

d- All of these

Answer: D

25- Inhibitors for Complex III

a- Amytal

b- Cyanide

c- Antimycin

d- Carotenoids

Answer: C

26- Uncouplers

a- Compounds dissociate oxidation in respiratory chain from phosphorylation

b- 2,4 Dinitrophenol

c- A,B

Answer: C

27- Which of the following component of respiratory chain is not attached to the inner

mitochondrial membrane

a- Coenzyme Q

b- Cytochrome C

c- A ,B

d- None of the above

Answer: C

28- Substrate level phosphorylation means

a- Formation of ATP in the respiratory chain

b- Formation of ATP from high energy compound

c- Formation of NADH+H from oxidation of food stuff

d- None of the above

Answer: A

29- The transfer of reducing equivalents through respiratory chain depends upon

a- The difference in their redox potential

b- Their content of iron in the form of ferrous

c- Their molecular weight

d- All of the above

30- When the (G) is negative that means

a- The reaction can proceed spontaneously

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

b- The reactant has more energy than the product
c- The reactant has less energy than the product

Answer: A

31- The group of oxidoreductase which cytochrome P450 is related

a- Oxygenase

b- Dehydrogenase

c- Oxidase

d- Hydroperoxidase

Answer: B

32- All of the following are antioxidants excepts

a- H2O2

b- Vitamin C

c- Vitamin E

d- Catalase enzyme

Answer: A

33- The protein complex is found in

a- Outer membrane

b- Inner membrane

c- Inter membrane spaces

d- Mitochondria

Answer: B

34- Substrate linked phosphorylation occur in

a- Glycolytic pathway

b- Urea cycle

c- Fatty acid synthesis

d- None of the above

Answer: D

35- Hydrogen peroxide may be detoxified

a- Glutathione reductase

b- Catalase

c- Superoxide dismutase

d- All of the above

Answer: D

36- The more positive the Eθ the greater the tendency of the oxidant member of that pair to

a- Loss electrons

b- Gain electrons

c- Loss and gain electrons

d- Loos or gain electrons

Answer: B

37- All of the following statements about ATP synthase are correct except

a- Is a large complex formed from two subunit F1 ,Fo

b- Catalyzes the formation of ATP

c- Is inhibited by cyanide ?

d- Can exhibit ATPase activity

Answer : D

38- An increase in oxidative damage to DNA ,protein and lipid mat lead to disease such as

a- Atherosclerosis

b- Diabetes

c- Cancer

d- All of the above

Answer : D

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

39- An important lipid soluble vitamin act as antioxidant is

a- Vitamin C

b- Vitamin E

c- Vitamin B12

d- Vitamin K

Answer: B

40- Amytal barbiturate is used as sedative drug which may inhibit ATP production by inhibiting

a- Complex I?

b- Complex II

c- Complex III

d- Complex IV

Answer: A

41- Reduction

a- Is gain in electron

b- Loss of hydrogen

c- Gain of oxygen

d- All of these

Answer: A

42- Exogenous antioxidants

a- Vitamin E

b- Ascorbic acid

c- Metal binding protein

d- A,B

Answer: D

43- Inhibitor for complex 4?

a- Amytal

b- Cyanide

c- Antimycin

d- Corotenoids

Answer: B

44- Reactive oxygen species (ROS) include

a- Nitric oxide NO

b- Nitrogen dioxide NO2

c- Nitrogen acid HNO3

d- None of the above

Answer: A

45- Interaction of hydroxyl radical OH- with purine will generate

a- 8 hydroxy deoxy guanosine

b- Carbonyl C=O groups aldehydes, ketones

c- Malondialdehyde

d- Citrilline

46- When inhibitors bind to the respiratory chain?

a- ATP synthesis stop

b- Proton pumping into the inter membrane space stop

c- The components after the side of block still oxidized

d- All of the above

Answer: D

47- Catalase enzyme is a member of

a- Monooxygenase

b- Dehydrogenase

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Batch36Human Medicine

c- Hydroperoxidase

d- Oxidase

Answer: C

48- The most powerful natural antioxidant is

a- Vitamin C

b- Caffeine

c- B-carotene

d- Vitamin E

Answer: D?

49- H2O2 is considered as free radical due to

a- It is present in high concentration

b- It is highly reactive molecule

c- All of the above

d- It is toxic radical

Answer: C

50- The oxidation reduction system having the highest redox potential is

a- Ubiquinone ox/red

b- Fe3+ cytochrome a/Fe2+

c- Fe3+ cytochrome b/Fe2+

d- NAD+/NADH

51- The compound having the lowest redox potential among the following is

a- Hydrogen

b- NAD

c- Cytochrome b

d- Cytochrome a?

Answer: A

52- All of the following compounds are members of electron transport chain except:

a- Ubiquinone

b- Carnidine

c- NAD

d- FAD

Answer: B

53- The correct sequence of cytochrome carrier in respiratory chain is

a- Cyt b - cyt c- cyt c1 – cyt a3

b- Cyt a3 - cyt b- cyt c – cyt c1

c- Cyt b - cyt c1- cyt c – cyt a3

d- Cyt b - cyt a3- cyt c1 – cyt c

Answer: C

54- A compunant of the respiratory chain in mitochondria is

a- Coenzyme Q

b- Coenzyme A

c- Acetyl coenzyme?

d- Coenzyme containing thiamin

Answer: A

55- The negative standard reduction potential of redox pair such as NAD/NADH has a greater tendency to

a- Lose electron

b- Gain electron

c- Lose or gain electron

d- Lose and gain electron

Answer: A

56- In the endergonic reaction process

a- This process occur spontaneously

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

b- This process need energy

c- This reaction is reversible

d- The free energy of product is more than reactant

Answer: D

57- When antimycin A inhibitor present

a- Cyt C remain oxidized?

b- Complex I inhibited

c- Complex II inhibited

Answer: A

58- At sites of phosphorylation in the respiratory chain the minimum difference in the redox potentials of two consecutive component is

a- 0.2 mv

b- 0.2 v

c- 0.42 mv

d- 0.42 v

59- When reducing equivalents enter the respiratory chain through NAD the P/O ratio is

a- 1:2

b- 2:1

c- 1:3

d- 3:1

Answer: D

60- Cyanide inhibits phosphorylation at

a- Site I?

b- Site II

c- Site III

d- None of these

Answer: D

61- F0 component of vectorial ATP synthetase is inhibited by

a- Dinitrophenol

b- Rotenone

c- Cyanide

d- Oligomycin

Answer: D

62- Uncouplers of oxidative phosphorylation

a- Inhibit F0 component of vectorial ATP synthetase

b- Inhibit F1 component of vectorial ATP synthetase

c- Make the inner mitochondrial membrane permable to H+

d- Inactive cytochromes

Answer: C

63- Cytochrome oxidase is poisoned by all the following except?

a- Co

b- Hydrogen sulphide

c- Oligomycin

d- Cyanide

Answer: C

64- The following reaction can be considered as oxidation

a- Fe3++electron →Fe2+

b- Cu2++electron →Cu+

c- Fe2+→Fe3++electron

d- None of the above

Answer: C

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

65- The number of ATP produced in the oxidation of 1 molecule of NADPH in oxidative phosphorylation is

a- Zero

b- 2

c- 3

d- 4?

Answer: A

66- Cytochrome oxidase contains:

a- Zn2+

b- Fe2+

c- Mn2+

d- Cu2+

Answer: D

67- Respiratory chain is inhibited by all of the following except

a- Increase NADH+H

b- Increase ATP

c- Increase Acetyl CoA

d- Increase TTP
Answer: A

68- All of these processes occur in mitochondria except

a- Citric acid cycle

b- Oxidative phosphorylation

c- Ketogenesis ?

d- Glycolysis

Answer: D

69- The function of cyt C in complex IV is

a- Transfer of electron to O2 to form H2O

b- Pump proton

c- Both a,b

d- None of these

Answer: C

70- The electrochemical gradient across the inner mitochondrial membrane caused by

a- The inner mitochondrial membrane become permeable to proton

b- The outer mitochondrial membrane become permeable to proton

c- Proton pump across the inner membrane

Answer: C

71- The coenzyme Q is transferred to ubiquinol by

a- Adding one electron and one proton

b- Adding 2 electrons and 2 protons

c- Adding 2 protons?

d- Adding 2 electrons

Answer: D

72- Which of the following is endogenous source of free radicals

a- Electron transport chain

b- Oxidant enzymes

c- Bacterial infection

d- All of the above

Answer: D

73- A mobile carrier molecule in respiratory chain is

a- CoQ

b- Cyt a

c- Cyt b

d- Cyt a3

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch 36 Human Medicine

Answer: A

74- oxidation reduction potential

a- depend on the number of electrolytes in the reaction

b- it is the affinity of a substrate to accept electrons?

c- both a,b

d- none of these

Answer: B

75- ATP is important for all of these except

a- Muscle contraction

b- Synthesis of macromolecules

c- Support the exergonic reaction

d- Active transport across membranes

Answer: C

76- The free energy change (ΔG0

) depends on

a- The nature and concentration of initial reactants only

b- The nature and concentration final products only

c- The nature and concentration of the initial reactants and final products

d- None of the above

Answer: C

77- The outer mitochondrial membrane?

a- Contain the electron transport chain

b- Is deeply invaginated to produce a large surface area

c- Contains acyl CoA synthetase

d- Contains the tricarboxylic acid cycle enzymes

Answer: C

78- The relative concentration of ATP and ADP control the cellular rate of

a- Glycolysis

b- Oxidative phosphorylation

c- Citric acid cycle

d- All of the above

Answer: D

79- The first step of oxidation and NADH+H

a- 4 electrons transfer to CoQ

b- 2electrons and 2 protons transfer to FMN

c- 2 electrons only transfer to FMN

d- 4 protons transfer to Cyt C

Answer: B?

80- Oxidizing or reducing agents may exist as

a- Oxidant form only

b- Reduced form

c- Conjugate pair of oxidant and reductant form

d- None of the above

Answer: C

81- Enzymes catalyzes transfer and incorporated of oxygen into substrate are

a- Oxidase

b- Oxygenase

c- Catalase

d- Peroxidase

اللجنة العلمية ط٣٦ ب بشري
The Scientific Committee Of The Batch36Human Medicine

Answer: B

82- In the respiratory chain the relatively most electropositive molecule is

a- NADH+H+

b- FMN

c- Cyt b

d- O2

Answer: D

83- Which of the following statement about energy conservation in mitochondria is false

a- Drugs which inhibit ATP synthase will also inhibit flow of electrons

b- The yield of ATP per mole of oxidizable structure depends on the substrate

c- Uncouplers have exactly the same effect on electron transfer as inhibitors

d- None of the above

Answer: D

84- Oligomycin

a- Bind to the F0 of the ATP synthase

b- Prevent thrombosis

c- Is uncoupler

d- Both A,C

Answer: D

85- Almost all of oxygen one consumes in breathing is converted to

a- Acetyl CoA

b- Carbon dioxide

c- Carbon monoxide then dioxide?

d- None of the above

Answer: D (water)

86- In normal mitochondria the rate of NADH oxidation will

a- Be increased in active muscle and decrease in inactive muscle

b- Be very low if ATP is inhibited

c- Decrease if mitochondrial ADP is depleted

d- All of the above

Answer: D

87- During oxidative phosphorylation the proton motive force that is generated by electron transport is used to

a- Create a pore in the inner mitochondrial membrane

b- Induce a conformational change in the ATP synthase

c- Oxidize NADH to NAD

d- Reduce O2 to H2O

Answer: B

88- The following reaction

2 + O-

2 + 2H+ → H2O2 + O2 is catalyzed by

a- Superoxide dismutase

b- Glutathione peroxidase

c- Catalase

d- Glutathione reductase

Answer: A

اللجنة العلمية ط ٣٦ ب بشري
The Scientific Committee Of The Faculty Of Human Medicine

اللجنة العلمية ط36ب بشري

89- In some reactions the energy captured in the form of

a- UTP

b- CTP

c- GTp

d- All of the above

Answer: D

90- Cytosolic glutathione peroxidase contains

a- Selenium

b- Manganese?

c- magnesium

d- cooper

Answer: A?

اللجنة العلمية ط ٣٦ ب بشري

The Scientific Committee Of The Batch 36 Human Medicine